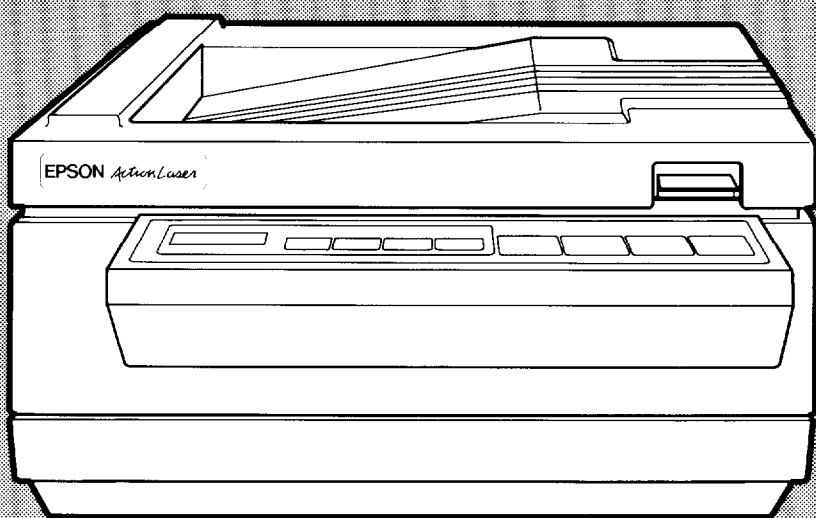# EPSON® *ActionLaser*™

USER'S MANUAL

FCC COMPLIANCE STATEMENT FOR AMERICAN USERS

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

· Reorient or relocate the receiving antenna
· Increase the separation between the equipment and receiver
· Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
· Consult the dealer or an experienced radio/TV technician for help.

WARNING

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces.

Changes or modifications not expressly approved by Epson America, Inc., could void the user's authority to operate the equipment.

CAUTION

Use of controls or adjustments, or performance of procedures, other than those specified in this manual may result in hazardous radiation exposure.

FOR CANADIAN USERS

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le present appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectriques édicté par le Ministère des Communications du Canada.

EPSON® *ActionLaser*™

User's Manual

Epson is a registered trademark of Seiko Epson Corporation.
Action Laser is a trademark of Epson America, Inc.
General Notice: Other product names used herein are for identification purposes only and may be trademarks of their respective companies.

IMPORTANT SAFETY INSTRUCTIONS

1. Read all of **these** instructions and save them for later reference.

2. Follow all warnings and instructions marked on the product.

3. Unplug this product from **the** wall outlet before cleaning. Do **not** use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning the outside of the unit.

4. Do not use this product near water.

5. Do not place this product on an unstable cart, stand, or table. The product **may** fall, causing serious damage to the product.

6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of **the** product and to protect it from overheating, **these** openings must not be blocked or covered. The openings should never be blocked by placing the product **on a** bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or **heat** register. This product should not be placed in a built in installation unless proper ventilation is provided.

7. This product should be operated from the type of power source indicated **on** the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

8. This product is equipped with a 3-wire grounding-type plug, a plug having **a** third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into **the** outlet, **contact** your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding type plug.

9. Do not locate this product where the cord will be walked on.

10. If an extension cord is used with this product, make sure **that the** total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord ampere rating. Also, make **sure that** the total of all products plugged into the wall outlet does **not** exceed 15 amperes.

11. Never push objects of any kind into this product through cabinet slots, as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.

12. Except as specifically explained in the User's Manual, do not attempt to service this product yourself. Opening or removing those covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks. Refer all servicing in **those** compartments to service personnel.

13. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    A. When the power cord or plug is damaged or frayed.

    B. If liquid has been spilled into the product.

    C. If the product has been exposed to rain or water.

    D. If the product does not operate normally when the operating instructions are followed. Adjust only **those** controls **that** are covered by the operating instructions, since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.

    E. If the product has been dropped or the cabinet has been damaged.

    F. If the product exhibits a distinct change in performance, indicating a need for service.

Contents

About This Manual

This user's manual provides step-by-step instructions on setting up and operating your laser printer.

Finding your way around

The introduction includes important information on precautions you should take while operating your laser printer. It also discusses the features of your ActionLaser,™ tells you where you can get help, and lists **the** options available for this printer.

- Chapter 1 contains information on unpacking and setting up your printer.

- Chapter 2 includes information on testing the printer and connecting the printer to your computer. This chapter also describes how to change your print density setting.

- Chapter 3 contains information on general printer operation, including SelecType.

- Chapter 4 details paper handling.

- Chapter 5 gives you information on the HP LaserJet series II mode, including a command summary.

- Chapter 6 gives you information on maintaining and transporting your printer.

- If the printer does not operate properly or the printed results are not **what** you expect, see Chapter 7 for a list of possible problems and recommended solutions.

- See the appendixes for information on available symbol sets and a list of technical specifications.

- The manual concludes with an index.

- A Quick Reference Card at the back of the manual provides a map of SelecType menus.

- The back flap area has **a** front and rear view of the printer designating major parts. Views of the printer's internal components are also shown.

Conventions used in this manual

WARNINGS must be followed carefully to avoid bodily injury.

CAUTIONS must be observed to avoid damage to your equipment.

Notes contain important information and useful tips on the operation of your printer.

Introduction

The ActionLaser printer offers high performance and reliability and a wide range of features. Your printer combines a semiconductor laser with the electrophotographic technology used in office copiers to give you high-quality printing that is both fast and quiet.

The imaging system used by your laser printer is driven by a powerful computer that allows the printer to compose an entire page in internal memory before printing. The printer can manipulate the page it holds *in* memory to provide you with the ability to mix text and graphics, create predefined forms, and print with a range of fonts normally associated with typeset material.

Features

In addition to the high-quality printing and ease of operation you have come to expect from Epson@ printers, the ActionLaser printer offers the following:

* HP LaserJet series II emulation resident in the printer, giving you access to the wide range of software written for Hewlett-Packard laser printers.

* An optional Epson FX Identity Cartridge that uses the ESC/P standard. This cartridge comes with its own user's manual.

* Epson's SelecType feature that gives you touch control over many printer features, including font selection, paper size, and interface settings.

* Two slots available for font and identity cartridges.

* The ActionLaser can accommodate HP-compatible soft fonts.

* A built-in 512KB of RAM. A 2MB memory board option (upgradable to 4MB) is also available.

- High-quality, 300 dot-per-inch (DPI) printing at a speed of 6 pages per minute for letter-size paper.

- Two paper delivery methods: facedown delivery for collated sheets and face-up delivery for printing on media requiring a straight paper path and for immediate viewing of printed output.

- Three built-in interfaces: parallel and RS-232C and RS-422A serial.

- A small footprint and a light weight.

- Enhanced paper handling capabilities that allow you to select a variety of sizes for automatic feeding without having to change paper cassettes. A manual paper feed capability is also available.

Where to get help

Customer service for Epson products is provided by a network of authorized Epson Customer Care Centers throughout the United States.

Call the Epson Consumer Information Center at 1-800-922-8911 for the following:

- Customer Care Center referrals

- Technical support referrals

- Information on Epson User Groups.

Options and supplies

To locate or purchase accessories or supplies, contact the store where you bought your printer or call Epson Accessories, Inc. at 1-800-873-7766.

Epson FX Identity Cartridge	#IBS100
Replacement Toner Cartridge	#IBS300
Drum Unit	#IBS301
Optional 2MB Memory Board	#IBS401

Memory management

Your printer has a standard memory of 512KB expandable to 2.5MB with the purchase of the optional 2MB memory board. An additional 2MB can be added to the optional memory board for a total memory of 4.5 MB.

If you wish to print full-page, 300 dot-per-inch graphics or perform other sophisticated print jobs (such as complex pages using a variety of fonts), it is recommended that you install the optional 2MB memory board.

Laser printer precautions

Certain precautions are necessary to ensure the safe and efficient operation of a laser printer. The following list of precautions applies whenever you open the printer cover. Even if you are familiar with other types of printers, be sure to follow these precautions carefully.

- Be careful not to touch the fuser, which has a hot surface. (The fuser is the orange-colored area on the left side of the printer, inside the cover.) There is a label on the fuser warning you not to touch the hot surface.

- Protect the light-sensitive drum from exposure to light. You should avoid exposing the drum unit to room light for any longer than necessary. Never expose the drum to lighting any stronger than room light. Overexposing the drum may cause abnormally dark or light areas to appear on the printed page, reducing the service life of the drum.

  If you must expose the drum, either by taking the drum unit out of the printer or by leaving the printer cover open, cover the drum with a soft cloth or sheet of paper.

- If you remove the drum, developer unit, or basket from the printer, always set them on a clean, smooth surface. Be sure not to scratch or mar the roller on the developer unit or the surface of the drum. Also avoid touching the drum, since oils from your skin can permanently mar its surface and affect print quality.

- Never try to force the printer's components into place. Although the printer is designed to be sturdy, rough handling can damage the printer.

Chapter 1
Setting Up the Printer

Finding a Place for the Printer

Setting up your printer is a simple process that takes only a few minutes. You need to find a location for your printer and install a few parts. Then your printer will be ready to be connected to your computer.

Before setting up your printer, you need to find a suitable place to use it. Be sure to keep the following points in mind when selecting a place for your printer:

* Place the printer on a flat, stable surface.

* Place the printer close enough to the computer or workstation for its cable to reach.

* Your printer is equipped with four rubber feet. Be sure that your printer stand or desktop is large enough to accommodate all four feet.

* Use a grounded outlet-one that has three holes to match the power plug on the printer. Do not use an adapter plug.

* Leave adequate room around the printer to allow easy printer operation and maintenance. You need to locate a space that is 35 inches (889 mm) wide and 24 inches (610 mm) deep. When you install the printer in this space, you should make sure there is sufficient room **on** each side of the printer. See the following diagram for details.

> Note: If you plan to install the face-up output tray, you need a space **that** is 44 inches (1118 mm) wide and 24 inches (610 mm) deep. Within this area, you need 13 inches (330 mm) of flat, unobstructed space to the left of the printer, rather than the 5 inches (127 mm) shown in the diagram below. There should be at least 2 inches (50 mm) of space to the left of the tray after it is installed.
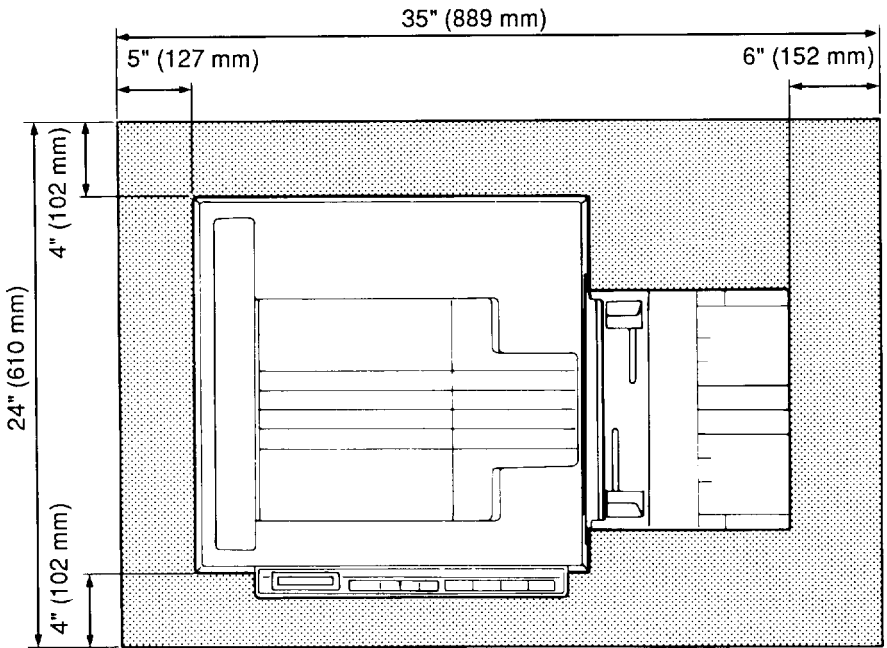
To give you enough room to open the printer cover, allow 18 inches (457 mm) from the bottom of the printer to any shelf or surface directly above the printer.
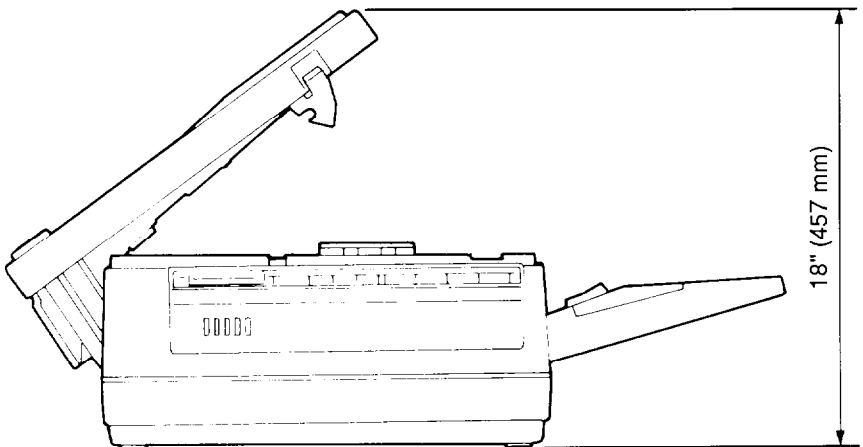
CAUTIONS:

- Avoid locations that are subject to direct sunlight, excessive heat, moisture, or dust.

  Avoid using electrical outlets that are controlled by wall switches or automatic timers. Accidental disruption of power can wipe out valuable information in your computer's memory and your printer's memory.

  Avoid using outlets on the same circuit with large motors **or** other appliances that might disrupt the power supply.

  Keep the entire computer system away from potential sources of interference, such as loudspeakers or the base units of cordless telephones.

Unpacking the Printer

Carefully unpack the outer carton. At the top of the carton is the accessory pack containing several printer components. Beneath the pack is the printer itself, which is protected by white foam packing material.

1. Remove the accessory pack and make sure you have the accessories shown below.

Unpacking instructions

Manual

Cotton swab

Face-up output tray

Magnetic cleaner

Paper cassette

Developer cleaner

Drum replacement cartridge

Developer unit

Cleaning pad

Drum unit

Power cord

Accessory pack
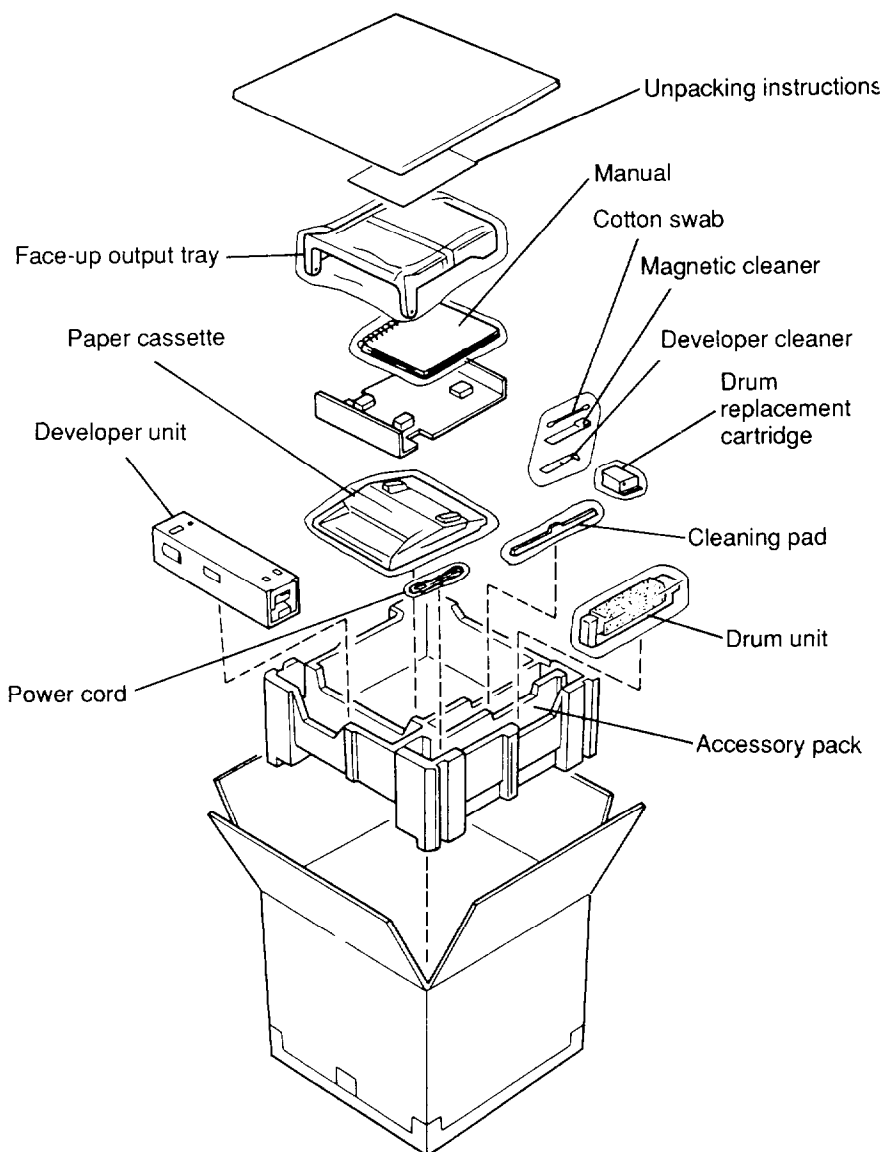
2. Carefully remove the printer from the outer carton, lifting the printer by the recesses on each side of it. Set the printer on a flat, stable surface. Since the printer is heavy, you may need to have someone help you lift it.
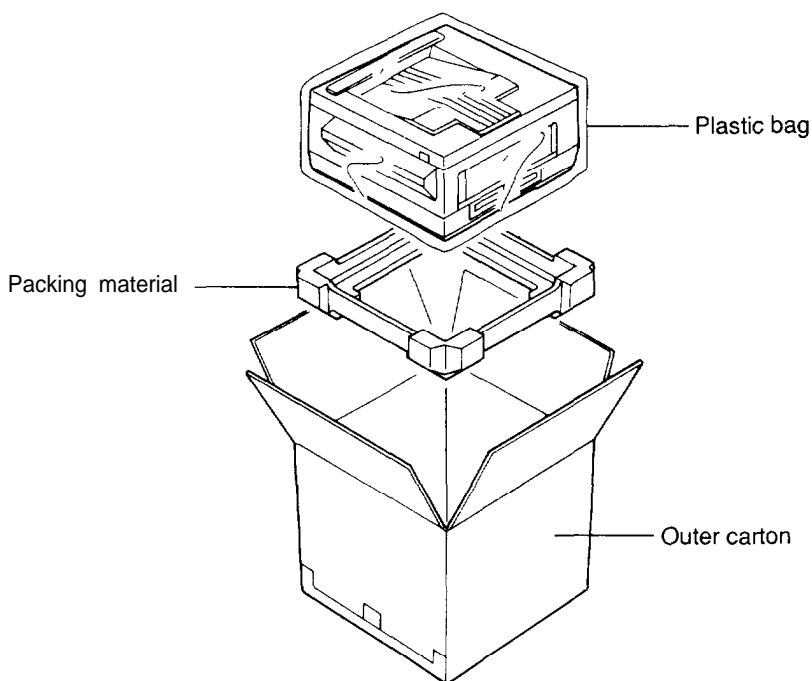
3. Remove the white foam packing material and plastic bag protecting the printer. Also remove the plastic bag from the paper cassette.

> **Note:** It is very important to save *all* packing materials. You need to repack the printer in these materials whenever you ship the printer. Chapter 6 has details on transporting your printer.

4. Raise the top cover of your printer by lifting up on the latch.
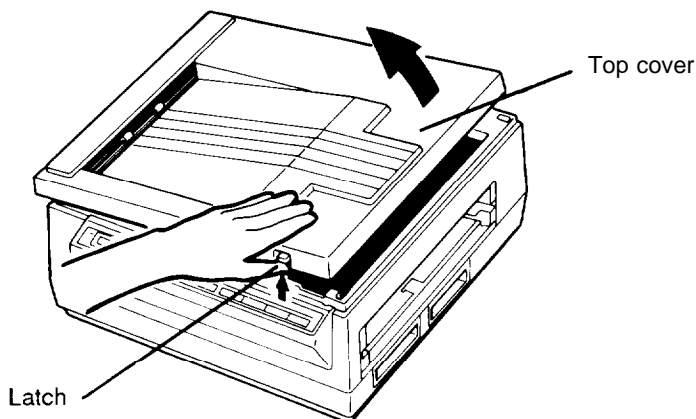
5. Remove the tape and foam from the printer and paper cassette as shown on the next page.

> ⚠ **CAUTION:** Be careful to remove all the tape and pieces of foam from the inside and outside of the printer, especially the foam taped inside the printer. Save the foam; you'll need it whenever you transport the printer.
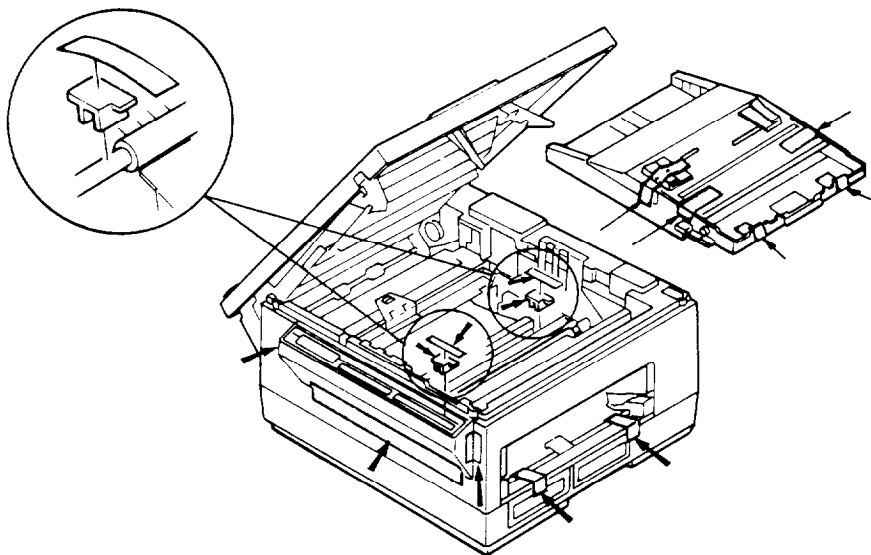
6. To close the cover, push only on the ridged portion of the lid.
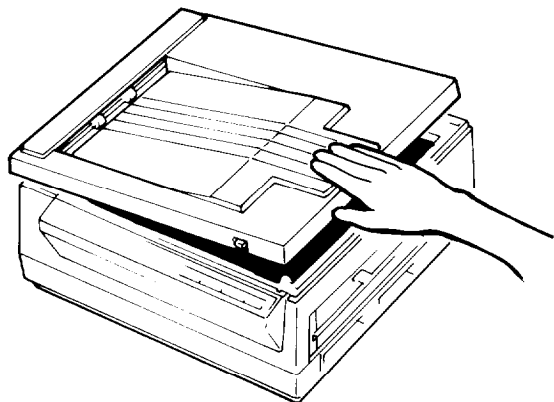
Carrying the Printer

When you move your printer to the location you selected for it,
carry the printer by holding the recesses on each side of the printer,
as shown below.

Note: The printer weighs about 36 lb. (16 kg) and should be
carried with care. You may need to have someone help you lift it.
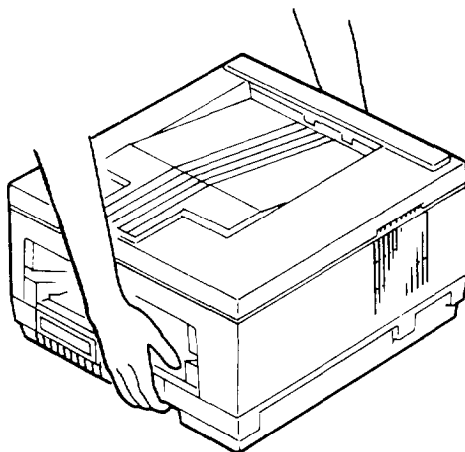
Assembling the Printer

Before you can use the printer, you need to install a few important parts. Before proceeding, familiarize yourself with the components shown below. The basket is inside the printer and must be removed when you install certain parts. The other parts shown were shipped in the accessory pack.
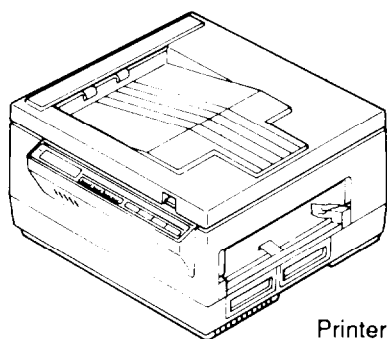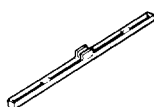
Cleaning pad
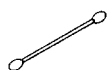
Cotton swab
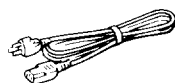
Power cord
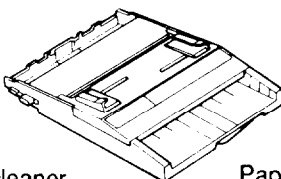
Printer
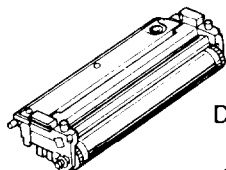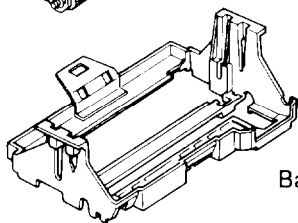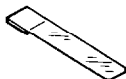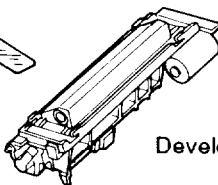
Magnetic cleaner

Paper cassette

Drum unit

Developer unit

Basket

Drum replacement cartridge
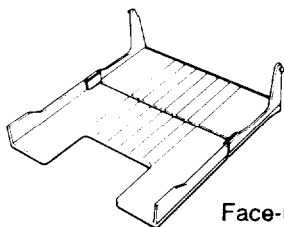
Developer cleaner

Face-up output tray

> **Note:** Put the developer cleaner and magnetic cleaner in a safe
> place for now. You'll need to use the developer cleaner if vertical
> white lines appear on your printed pages. The magnetic cleaner is
> useful for removing excess toner from the paper guide. Usage of
> these two accessories is described in Chapter 6.

Installing internal components

This section describes how to install internal components, including
the drum unit, drum replacement cartridge, cleaning pad, and
developer unit.

The drum unit, drum replacement cartridge, cleaning pad, and
toner cartridge (which is attached to the developer unit) need to be
replaced periodically. See Chapter 6 for details.

> **CAUTION:** When handling the drum, developer unit, or
> basket, always set them on a clean, smooth surface. **Be**
> sure not to scratch or mar the roller on the developer unit
> or the surface of the drum. Also avoid touching the drum,
> since oils from your skin can permanently mar its surface
> and affect print quality.

1. Raise the top cover of your printer by lifting up on the latch.
2. Remove the basket and place it on a flat surface.
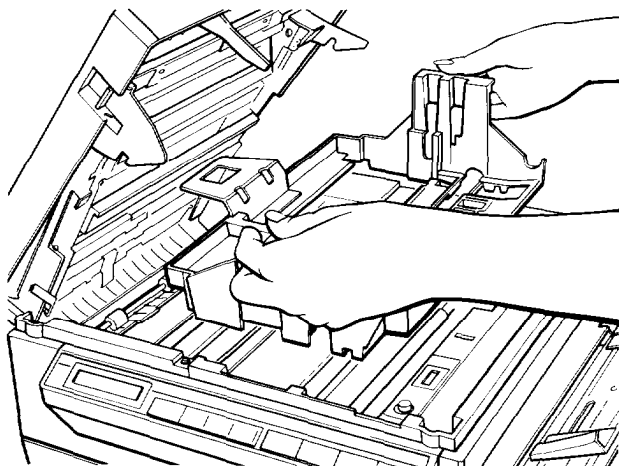
3. Locate the cleaning pad in the accessory pack. Holding the green felt tabs on the cleaning pad, insert the pad into the indentation on the orange-colored fuser on the left side of your printer.

WARNING: Never touch the fuser. When the printer is in operation, the fuser becomes very hot.
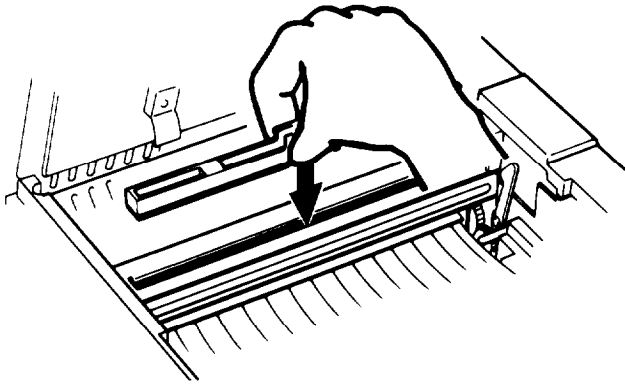
4. **Locate the** drum unit, which you can recognize by the bright green drum, and the cotton swab.

> **CAUTION:** Do not expose the photosensitive drum to light **any** longer than necessary (a few minutes at most). It is recommended **that** you cover the drum with a soft cloth or sheet of paper whenever the drum is exposed. Also, do not touch the surface of the drum.

5. Place the drum unit on a clean, smooth surface and locate **the** main charger wire, which extends along the length of the green drum inside a slot in the silver bar directly over the drum. The **wire is silver** and very thin, so it is difficult to see.

> **CAUTION:** The main charger wire is very delicate. Do not press **on** it too hard or it may break. Also, never touch **the** **wire.**

6. Gently clean the main **charger** wire with the cotton swab by rubbing the swab along the length of the wire. You need to insert the **cotton** swab **a** fraction of an inch into the slot to reach the wire.

Cotton swab

Main charger wire
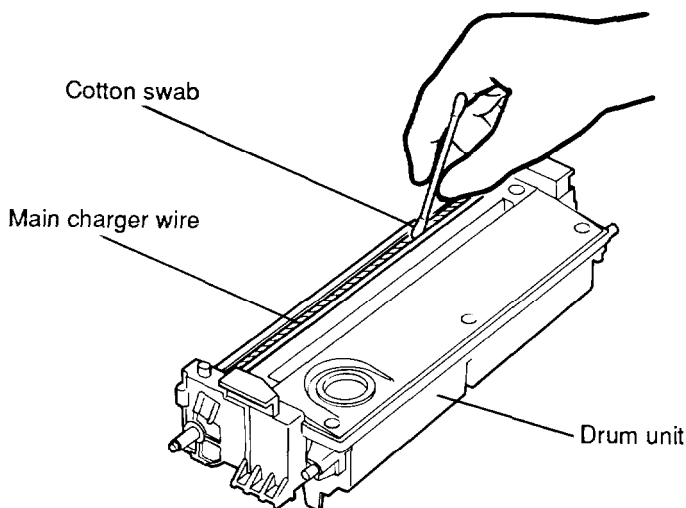
Drum unit

7. Set **the** drum unit **aside for** a moment and locate the developer unit, which is labelled: Initial Toner Cartridge.

> CAUTION: Do not touch the roller on the developer unit.

Developer roller
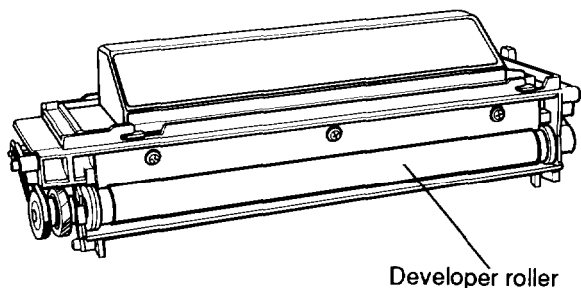
8. Hold the developer unit horizontally, with the toner cartridge label right side up. Gently shake the unit back and forth a few times to distribute the toner.
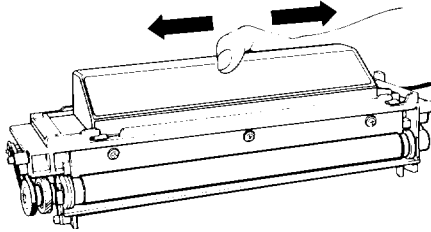
9. Install the drum unit (lifting it by its green handles) and the developer unit in the basket. The drum unit goes closer to the orange tab.
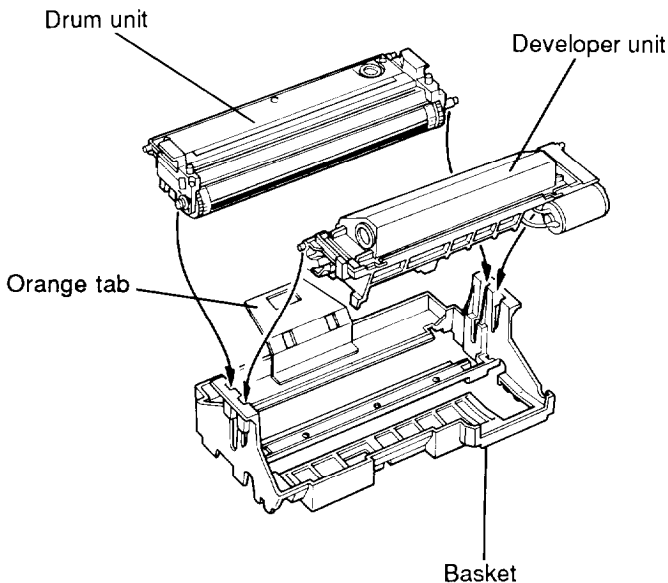
10. With the top cover of the printer open, align the blue arrow on the right side of the basket with the blue arrow on the printer case. (The arrows point toward each other when the unit is properly installed.) Gently lower the basket into place.
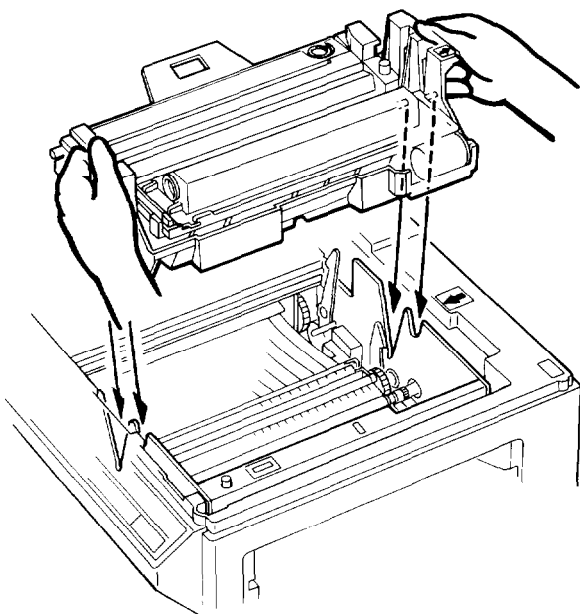
11. Press down simultaneously **on** the drum unit's two green handles until the drum unit clicks into place.
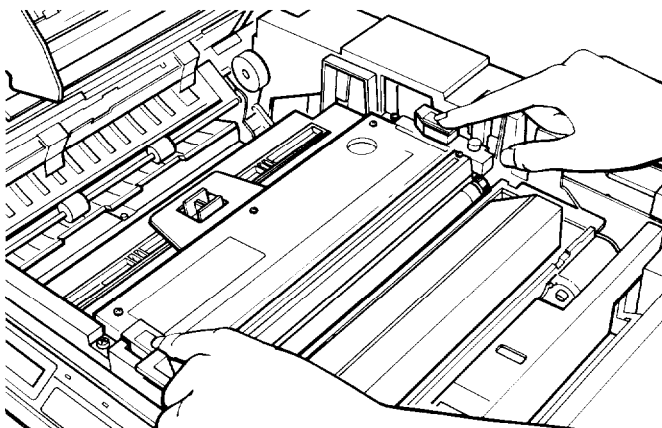
12. Unfasten the tape holding the clear plastic film in place on the initial toner cartridge, which is attached to the developer unit.

13. Pressing down on the toner cartridge to hold it firmly in place, pull out the film. (Pull the film up and out toward the back of the printer.) Pull firmly until the other end of the film comes out of the cassette.
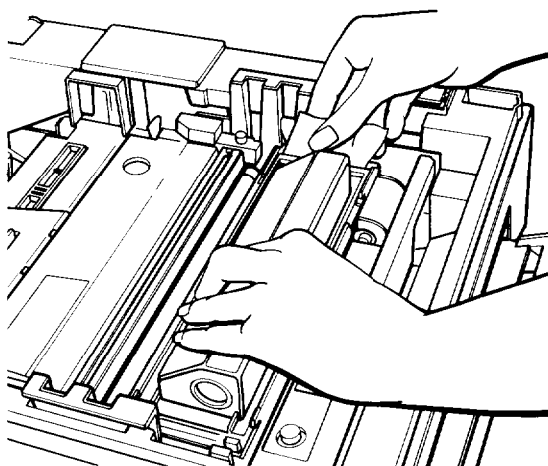
14. Insert the drum replacement cartridge in the slot at the right rear comer of the printer frame (with the printer cover open). Make sure that the indicator light faces the front of the printer. Press down on the cartridge until it is inserted all the way.
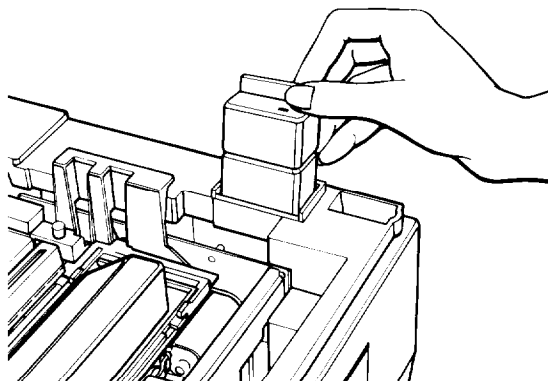
15. Now close the printer cover by pressing down on the ridged area on the right side of the cover.

Installing the paper cassette

1. Locate the paper cassette opening on the right side of the printer. Align the hooks on either side of the paper cassette with the slots in the opening. Make sure you have removed any tape in the opening.
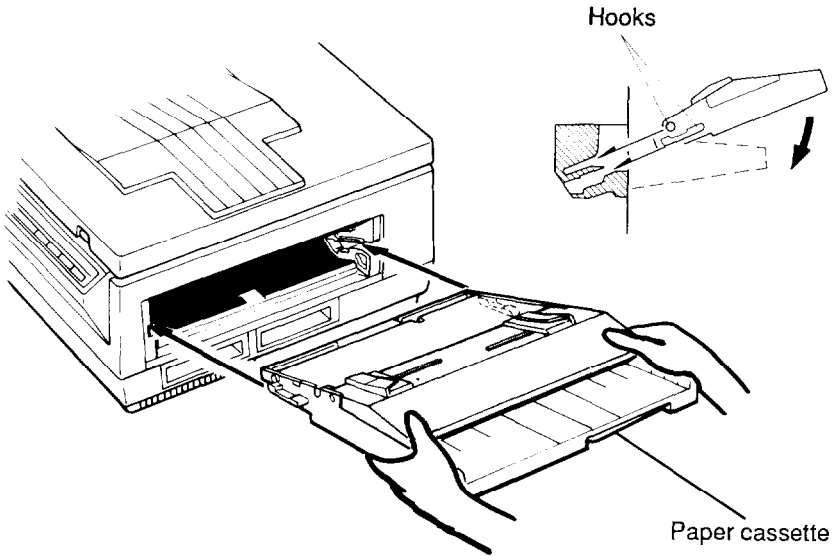
2. Insert the paper cassette into the printer in the direction of the arrow on the side of the cassette. Push the cassette in until it goes no further, then lower the end of the cassette (the end you insert paper into) until the cassette drops into place.

CAUTION: It is particularly important to lower the cassette into place. If the paper cassette is not installed properly, the control panel may display a PAPER EM P TV error.

Installing the face-up output tray

The face-up output tray lets you print heavier paper and other media requiring a straight paper path. (See Chapter 4 for details.) The face-up output tray also lets you view your printed output the moment it comes out of the printer.

If you wish to install the face-up output tray, follow these steps:

1. Locate the two face-up output tray hooks on the left side of your printer.

2. Mount the face-up output tray onto the hooks as shown.
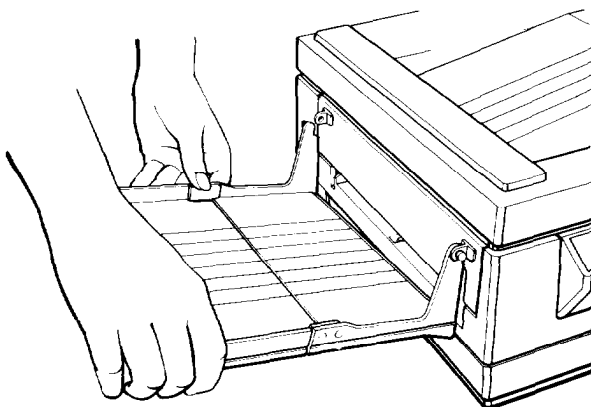
WARNING: When you open the printer cover, the tray touches the desktop and slides to the left of the printer as shown below. Before you install the tray, make sure there is at least 13 inches (330 mm) of unobstructed area to the left of the printer. Otherwise your tray may run into an obstruction and break when you open the cover.
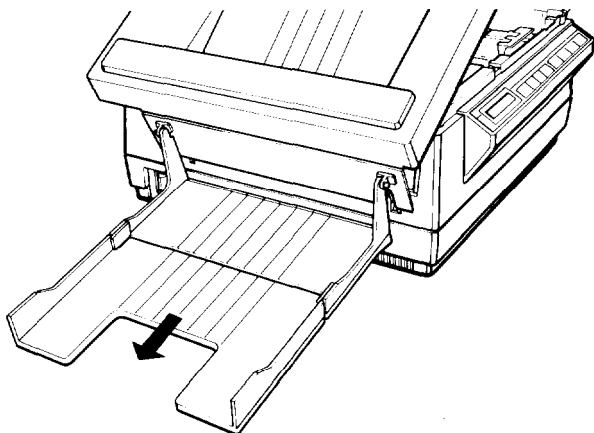
When it is not in use, you can leave the tray attached to the printer but rotated so that it rests on top of the printer. However, you should lower the tray before you open the printer cover.
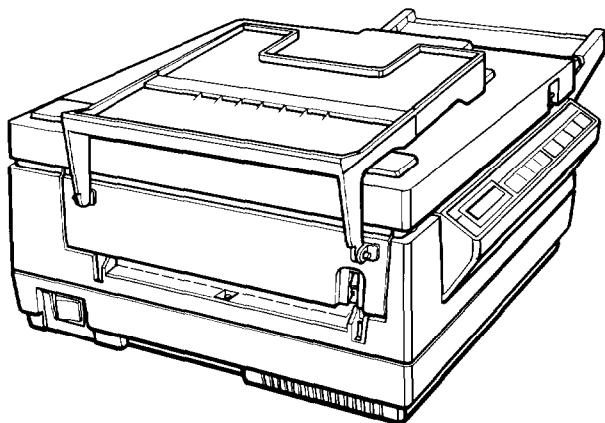
Note: The printer is factory set for face-down output on top of the printer. If you prefer face-up delivery, simply move the paper path selector (located on the left side of the printer) to the down position.

Paper ejected face down

Paper path selector

Paper ejected face up

Paper path selector
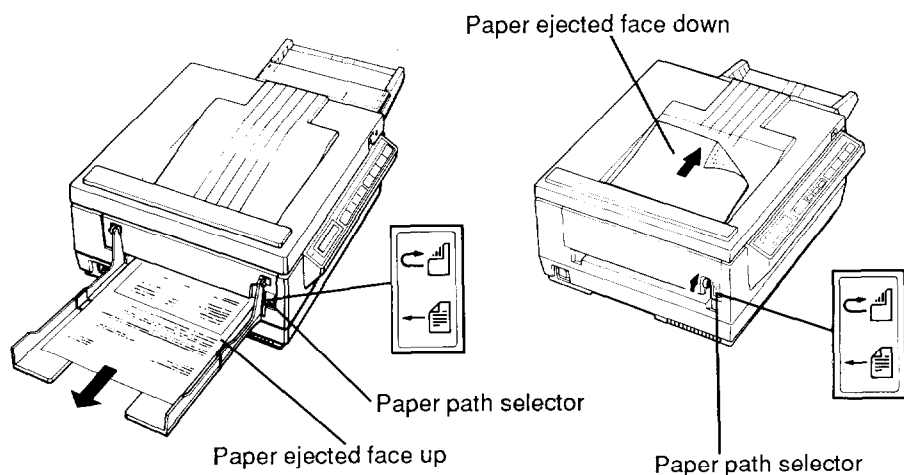
Attaching the power cord

1. Before attaching the power cord, make sure that the power switch on the left side of **the** printer is turned off. (It is off **when** the O side of the switch is pushed **down.)**
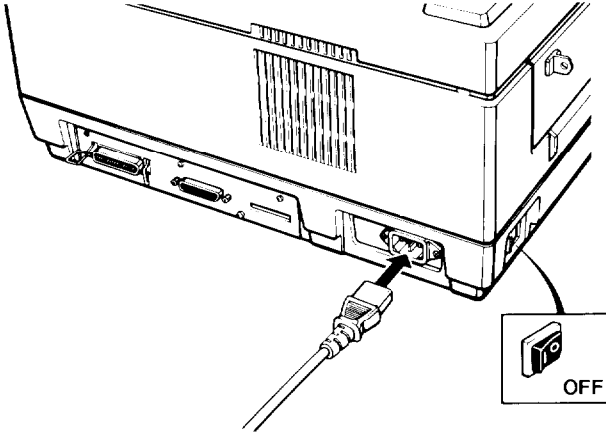
2. Attach the power cord to the socket at the back of the printer, as shown below. Then plug the other end of the power cord into a properly grounded outlet.

Note: Do not connect the printer to your computer until the next chapter.

Setting the paper feed mechanism

Follow the steps below if you are using the printer for the first time or if you **have** just transported the printer:

1. Be sure the printer is turned off; then remove the paper cassette.

2. Turn on the power by pressing **the** side of the power switch marked with the vertical bar. The power indicator lights and a **PAPER EMPTY** message appears.
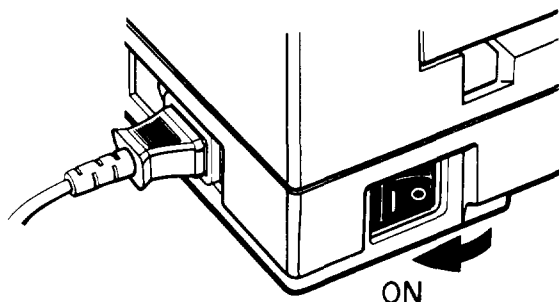
3. Wait at least five seconds, then turn off the power and reinsert the paper cassette. Push the cassette in until it goes no further, then lower the right side of the cassette (the side you load paper into) until it drops into place.

This procedure causes the paper feed mechanism, which can become misaligned when you transport the printer, to resume its original position. If you do not perform these steps before using your printer for the first time or after transporting your printer, paper jams may result.

Chapter 2
Testing and Connecting Your Printer

Testing the Printer

The laser printer has three built-in print tests: the self test, font print test, and status print test. These tests let you check the operation of your printer and obtain information on printer status.

It is recommended that you run the self test before you begin using your printer to make sure the printer is operating correctly. This test is also useful for checking the print density setting on your printer. The other two tests, the font print test and status print test, can be run any time you need information on fonts or printer status.

Before running any of these tests, make sure you have removed all protective materials from the printer and that you have installed all components as described in Chapter 1.

Note: You do not need to connect the printer to your computer before running these tests. (Connecting your printer to your computer is described later in this chapter.)

Before performing these tests, it is necessary to turn on the power and load paper as described below.

Turning on the power

1. Make sure the printer is plugged in.

2. Turn on the power by pressing the side of the power switch marked with the vertical bar.
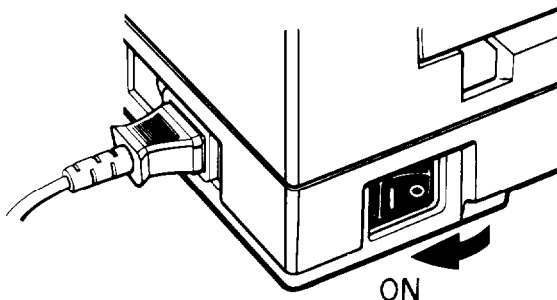
The power indicator lights and a **PLEASE WA I T** message appears while the printer warms up. (It takes about a minute for the printer to warm up.) Then the **PAPER EMPTY** message appears. If the display remains blank, see Chapter 7 for troubleshooting information.

> **CAUTION:** After turning off the printer, always wait at least five seconds before switching it back on.

Loading paper

The paper cassette holds up to 150 **sheets** of 20 lb. paper. To load paper, follow **the** steps below. See Chapter 4 for more information on paper handling.

1. Remove the paper cassette.
2. Open the manual feed tray **on** the paper cassette. Slide the paper guides all the way apart, as shown below.

Manual feed tray

Paper guide

Paper guide
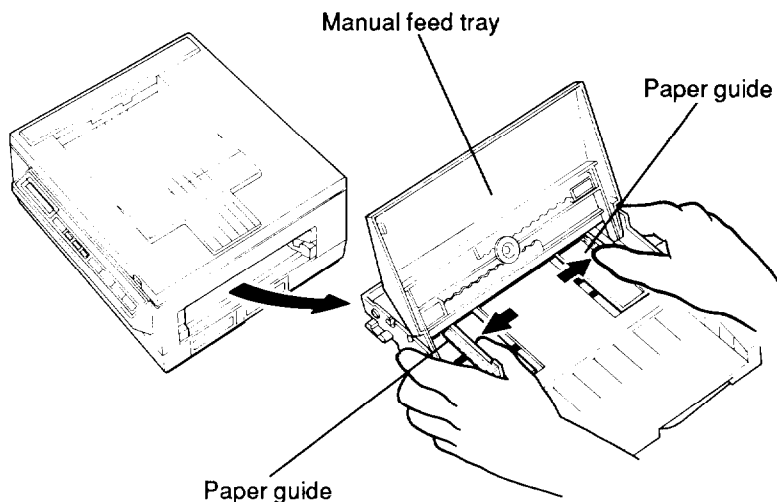
3. Take a stack of paper and fan it. Next, tap the edges of the paper on a flat surface to even up the stack.

4. Insert the stack of paper into the paper cassette, making sure that the top of the stack does not cover the red line inside the paper cassette. Push the paper in gently as far as it can go.
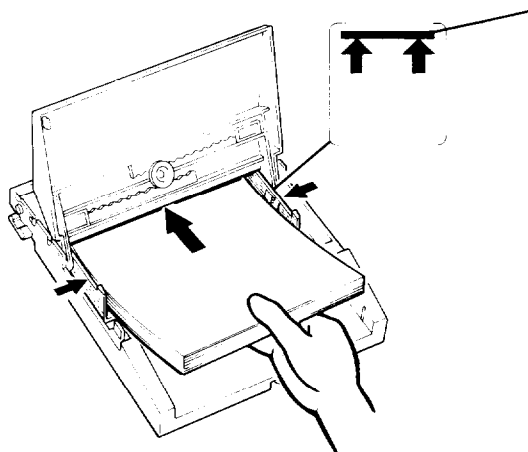
5. Slide the paper guides together (if necessary) until they are both resting lightly against the paper.

6. Close the manual feed tray.

7. Reinsert the paper cassette into the printer with the arrow on the side of the cassette pointing into the printer. Push the cassette in until it goes no further and lower the end of the cassette (the end you load paper into) until it drops into place.

> **CAUTION:** It is particularly important to lower the cassette into place. If the cassette is not installed properly, the message PAPER EMPTY appears in the display.

8. If you are not using letter size paper (the factory default setting for your printer), see the section on SelecType in Chapter 3 for details on setting the correct paper size.

Performing the self test

Successful completion of the self test indicates that you have set up your printer correctly and **that** you are ready to connect the printer to your computer. If you are unable to print this test, see Chapter 7 for troubleshooting information.

The self test also lets you check your print density setting. After you print **the** self test, check the character pattern to see whether you are satisfied with the print density. The section in **this** chapter on adjusting print density describes how to **change** the print density setting.

Follow **the** steps below to perform the self test:

![caution icon] **CAUTION:** Never open **the** cover while the printer is printing.

1. Be sure that your printer is plugged in and the power is on before performing the self test.

2. Be sure that your printer is off line. **(OFF LINE** appears on your display.) If not, press the **ON LINE** button to set the printer off line.

3. Press the **MANUAL** and **SPECIAL** buttons **on** your control panel at the same time.

4. When you release the buttons, **SELF TEST** appears on the
    display and the printer prints a self test.
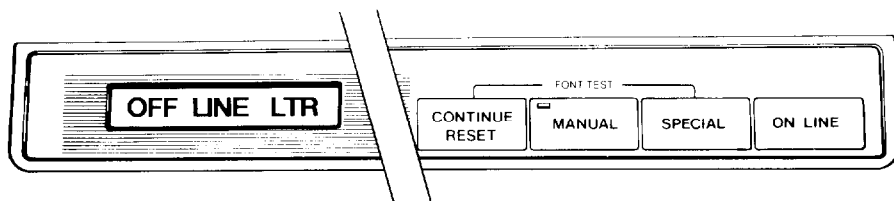
Notes:
- It is important to press the buttons *at the same time.*
- For more information on using the control panel, see
  Chapter 3.

Part of the character pattern is shown below. Look at your printout
to determine whether the print is too light or too dark. If you need
to change **the** print density, see the following section **on** adjusting
print density.

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmno
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnop
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopq
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqr
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrs
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrst
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstu
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuv
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvw
)*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwx
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxy
+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxyz
,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxyz{
-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxyz{|
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxyz{|}
/0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxyz{|}~█
```

Adjusting print density

If the self test you printed is too light or too dark, adjust the print
density as follows:

1. Open the printer cover by lifting up on the latch.

---

2. Locate the density control knob, which is in the front right comer inside the printer.

Density control knob
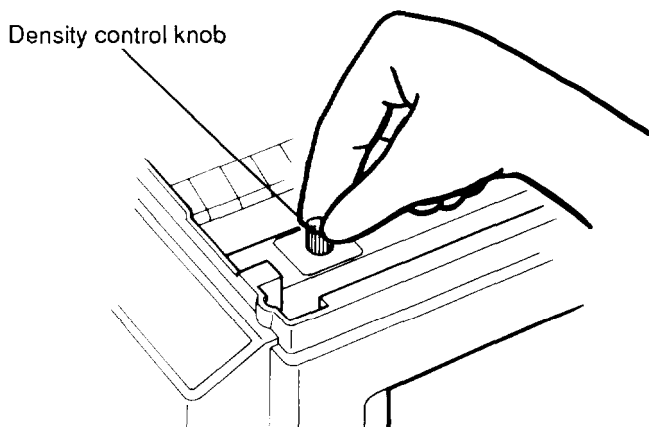
3. To make the print darker, turn the knob clockwise.

> **Note:** Increasing the print density increases toner consumption. If you increase the print density, you need to replace the toner cartridge more frequently.

Darker   Lighter
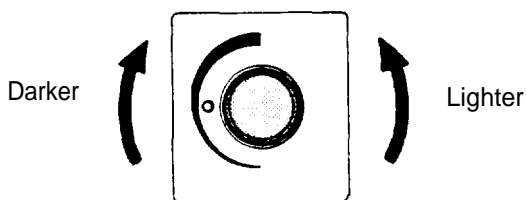
4. To make the print lighter, turn the knob counterclockwise.

> **Note:** If you wish to return the print density to the factory default setting, point the arrow on the knob toward the gray dot on the printer case.

5. Close the printer **cover.**

6. Print the self test again to check the new print density setting. (To print the self test, make sure the printer is off line; then press the **MANUAL** and **SPECIAL** buttons at the same time.)

Performing the font and status print tests

There are two other tests you can perform, in addition to the self test. The font print test gives you information on available HP fonts and the status test lists printer settings. Like the self test, the successful completion of either of these tests indicates that you have correctly set up your printer and that you are ready to connect the printer to your computer.

The font print test

The font print test gives you details on available HP fonts, including font source and font ID number, pitch, point size, available symbol sets, and a print sample.

The symbol set ID numbers listed on the font print test (in the symbol set column) provide the unique portion of the escape sequence needed to select that particular symbol set. For more information on symbol sets, see Appendix A, and for more information on escape sequences, see Chapter 5.

Follow the steps below to perform the font print test:

1. Be sure that your printer is plugged in and the power is on.

2. Be sure that your printer is off line. **(OFF LINE** appears on your display.) If not, press the **ON LINE** button to set the printer off line.

3. To perform the font print test, press the **CONTINUE/RESET** and the **SPECIAL** buttons at the same time.
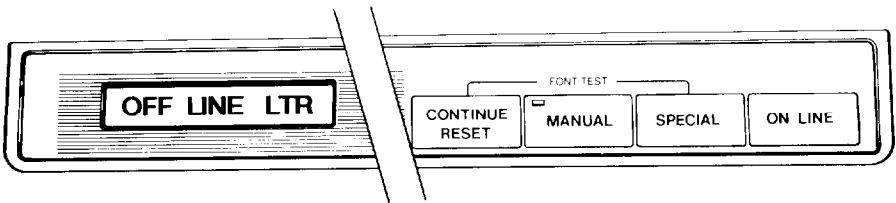
4. When you release the buttons, **FONT PRINT** appears on the display and **the** printer outputs a font print test.

A portion of the font print test printout is shown below.

```
Internal  I00   COURIER                10    12    8U     123ABCabc#$@[\]^'(|)~
                                                          ÎÏ``¨¯ÙÛ£ Ýý°ÇÁÃäÐdÍ
          I01   COURIER                10    12    10U    123ABCabc#$@[\]¨ˆ{|}¯
                                                          ª°¿—½¼¡«»  ▓|┤αßΓπΣσ
          I02   COURIER                10    12    11U    123ABCabc#$@[\]¨ˆ{|}¯
                                                          õÕ¿ãÃΩń¡³¤ ▓|┤αßΓπΣσ
          I03   COURIER                10    12    ON     123ABCabc#$@[\]¨ˆ{|}¯
                                                          |§¨●▪«¬─●¯°±η³ àáâãäå
          I04   COURIER   BOLD         10    12    8U     123ABCabc#$@[\]^'(|)~
                                                          ÎÏ``¨¯ÙÛ£ Ýý°ÇÁÃäÐdÍ
          I05   COURIER   BOLD         10    12    10U    123ABCabc#$@[\]¨ˆ{|}¯
                                                          ª°¿—½¼¡«»  ▓|┤αßΓπΣσ
          I06   COURIER   BOLD         10    12    11U    123ABCabc#$@[\]¨ˆ{|}¯
                                                          õÕ¿ãÃΩń¡³¤ ▓|┤αßΓπΣσ
          I07   COURIER   BOLD         10    12    ON     123ABCabc#$@[\]¨ˆ{|}¯
                                                          |§¨●▪«¬─●¯°±η³ àáâãäå
          I08   LINE   PRINTER         16.6  8.5   8U     123ABCabc#$@[\]^'(|)~
                                                          ÎÏ``¨¯ÙÛ£ Ýý°ÇÁÃäÐdÍ
```

Status print test

The status print test gives you information on current printer settings, such as paper size, number of copies selected, and font source and number.

Follow the steps below to perform the status print test:

1. Be sure that your printer is plugged in and the power is on.

2. Be sure that your printer is off line. **(OFF LINE** appears on your display.) If not, press **the ON LINE** button to set the printer off line.

3. Press the ▲ and ▼ buttons at the same time.
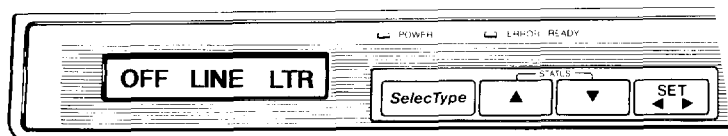
4. When you release the buttons, **STATUS PRINT** appears on the display and the printer outputs the status print test.

A portion of a sample printout is shown below.

```
                          Function & Menu Status

Paper Size          Letter           Interface    Parallel
Copies              1
Auto  Continue      ON
Status print        OFF
Power-ON            ON-LINE
Data  Buffer        2K Bytes
Over  Run Buffer    10 %
Buzzer              ON
```

```
                         Current  Page  Format

                        Letter   8.5 x 11 inch

              Vertical                          Horizontal

Page Length         66 Lines    Left Margin          0  Columns
 Top Margin          3 Lines    Right  Margin       80  Columns
Text  Length        60 Lines    Current CPI         10  CPI
Current  LPI         6 LPI       Printable  Chara    80  Characters
```

Connecting the Printer to Your Computer

For the laser printer to be able to receive and interpret information from your computer, both devices need to be set up so that they can communicate correctly. This requires having **the correct** interface cable and selecting **the** right communications settings. You **can** select from **the** following built-in interfaces:

- Parallel
- RS-232C serial
- RS-422A serial.

Choosing an interface

When connecting the laser printer to your computer, you first have to determine whether a parallel or serial connection should be used. Many computers only provide one type of connection for a printer. If both serial and parallel connections are available, it is normally better to use **the** parallel interface for the printer, leaving the serial port of your computer free for devices such as modems. If you are ii any doubt about which type of connection to make, **consult** your computer dealer.

Your printer is set up at the factory for parallel communication. If your computer also uses parallel communication, you should be able to connect up immediately, provided you have a shielded parallel interface cable.

If, however, you find **that** you need a serial interface, you must change the communications settings with SelecType as described in Chapter 3. You also need to find out which type of serial interface is required by your computer (RS-232C or RS-422A) and set the printer's DIP switches accordingly. (The DIP switches are factory set for the RS-232C serial interface.)

Connecting the parallel interface

If you are using the laser printer's standard parallel interface, you must use a shielded parallel interface **cable.**

Follow these steps to connect the parallel interface:

1. Turn off both your printer and computer.

2. Plug the connector securely into the parallel interface of the printer as shown. (The parallel interface is the leftmost connector, if you are facing the back of your printer.)
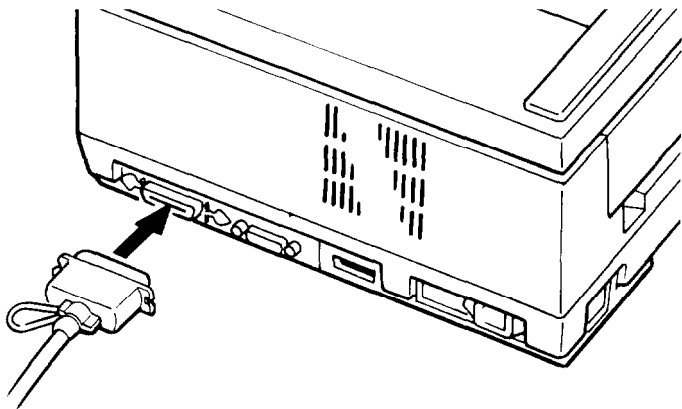
3. Lock the wire clips together into place on each side of the connector.
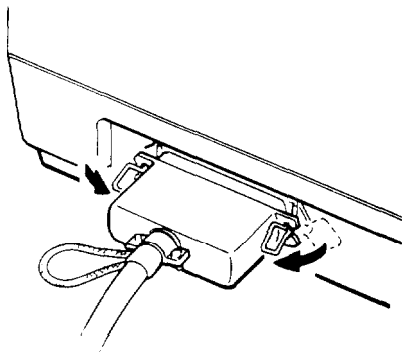
4. Plug the other end of the cable into your computer.

Now that you have connected the parallel interface, see Chapter 3 for information on operating your printer.

Connecting the serial interface

If you are using the printer's serial interface, make sure that you have a properly shielded cable, and that it is the correct one for your computer.

Follow these steps to connect the serial interface:

1. Turn off both the printer and the computer.

2. Plug the cable connector securely into the serial interface as shown. (The serial interface is just to the left of the DIP switches if you are facing the back of your printer.)
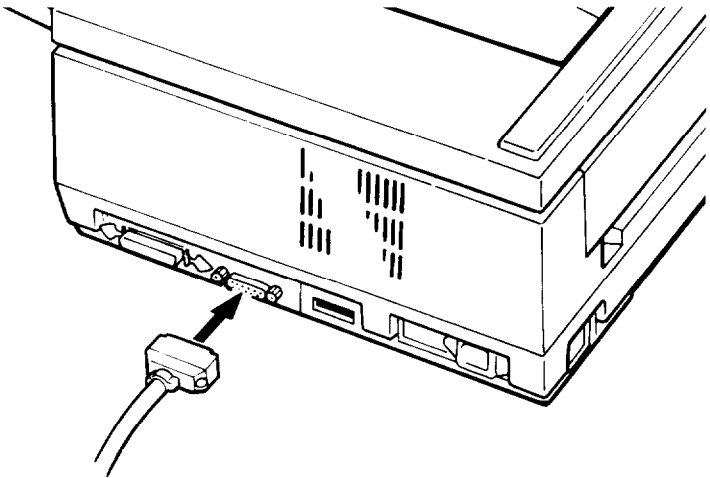
3. Use a screwdriver to fasten the screws of the connector, if required.
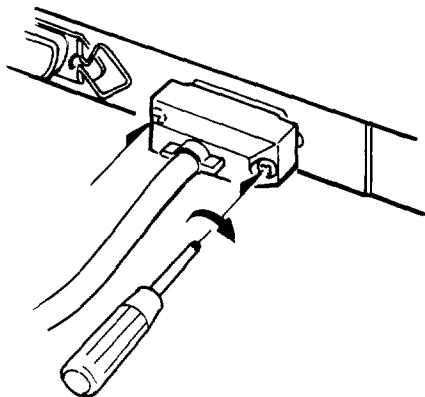
4. Plug the other end of the cable into your computer. (Fasten the screws of the connector to the interface, if required.)

This completes the connection of the serial interface cable. Now you need to set the DIP switches for the type of serial interface you are using.

Setting the DIP switches for the serial interface

The DIP switches are factory set for the RS-232C interface. If you are using the RS-422A interface, you need to change the DIP switches according to the table below.

The DIP switches are located at the back of your printer and are numbered 1 through 8.
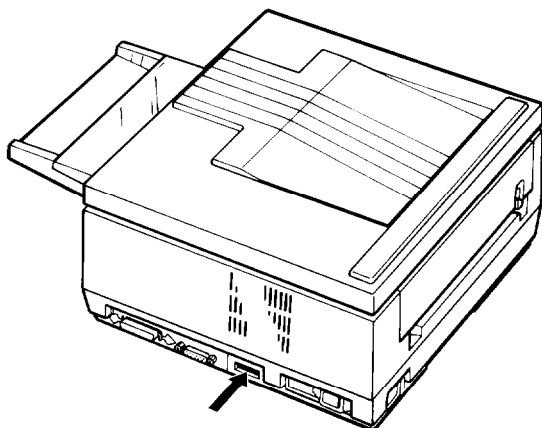
The DIP switch settings are listed below. Use the tip of a ballpoint pen or another small pointed object to turn the switches ON or OFF. Pressing a switch down sets it ON and up sets it OFF.

Note: Turn your printer off before setting the switches. Then turn it back on to implement your changes.

	1	2	3	4	5	6	7	8
RS-232C	OFF	OFF	OFF	OFF	*	OFF	OFF	ON
RS-422A	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF

* If DIP switch 5 is turned ON when the RS-232C serial interface is in use, pin 25 on the connector is set to +5V; if the DIP switch is turned OFF, the pin on the connector is not used.

Now that you have connected the serial interface cable and checked the DIP switches, you need to set the printer for serial communication in SelecType. You may also need to change several interface settings, such as baud rate and parity, before your printer and computer can communicate properly. See the SelecType section in Chapter 3 for details on serial interface settings and for other information on operating your printer.

Note: The serial interface settings on your printer must match the serial interface settings on your computer.

Chapter 3
Using the Printer

The Control Panel

The control panel on the laser printer gives you control over many printer functions, including interface settings, font selection, and paper size. The control panel is made up of three elements: a display, lights, and buttons. The buttons let you select options for SelecType printer functions, while the indicator lights and the display let you monitor **the** current status of the printer.

Control panel display

The display on the left side of the control panel lets you monitor the printer's status and view SelecType functions and their available options. The display gives you three types of information, as described below:

- Status messages, which appear in the display as part of the normal operation of your printer, indicate the printer's current status.

    DATA IN BUFFER   This message appears after the printer receives data without a form feed command. The printer is waiting to receive more data or a form feed command or for **you to** press the **CONTINUE/RESET** button to print the page.

    FONT PRINT   This **message** appears when you run the font print test, which prints all available fonts in HP emulation.

INITIALIZE   This message appears when you reset
                      printer functions to the original factory
                      default settings. This procedure is
                      described in the section on initializing
                      SelecType in this chapter.

ON LINE [LTR]   This message appears when the printer is
                      on line, ready to receive data. The current
                      paper size is shown on the right (for
                      example, L TR for letter size paper).

OFF LINE [LTR]   This message appears when the printer is
                      off line, unable to receive data. The current
                      paper size is shown on the right.

PLEASE WA I T   This message appears for approximately
                      60 seconds while the printer warms up and
                      completes self-diagnostic checks.

PROCESSING   This message appears while the printer is
                      receiving data and printing. It changes to
                      ON L I NE before the paper is ejected.

PUSH MANUAL KEY   This message appears during manual
                      printing. See Chapter 4 for instructions on
                      manual feed printing.

RESET   This message appears when you reset
                      printer functions to their SelecType
                      settings.

SELF TEST   This message appears during the self test,
                      which prints a character pattern that lets
                      you check the print density and see
                      whether your printer is operating correctly.

STATUS PRINT   This message appears during the status
                      print test, which gives you information on
                      current printer settings.

- Maintenance and error **messages** inform you of required maintenance or of an existing error condition. For a detailed list of maintenance and error messages, see Chapter 7.

- SelecType options let you control many printer functions, such as font selection and paper handling. For information **on** SelecType instructions and messages, see the SelecType sections later in this chapter.

Indicator lights

POWER	On when the printer power supply is on.
ERROR	On to indicate an error condition. Details of **the** error condition appear in the display.
MANUAL	Indicates **that** the printer is in **the** manual paper feed mode.

Buttons
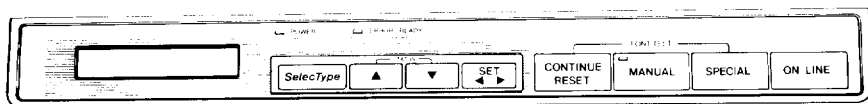
SelecType	When the printer is off line, use this button to enter or exit SelecType.
UP▲ **DOWN▼**	In SelecType mode, these two buttons allow you to move through SelecType menus and submenus.

SET
◀ ▶

Press this button to switch from a SelecType function to a list of options for that function and to set SelecType options.

CONTINUE/RESET

This button has several functions.

Printing data in buffer - When the printer is on line and print data is in the buffer and no new data is received within five seconds, the message **DATA IN BUFFER** appears. Pressing the **CONTINUE/RESET** button at that time clears the buffer by printing a page.

Resetting the printer - When the printer is off line, holding this button down for three seconds clears the buffer, resets printer functions to their current SelecType settings, and clears temporary soft fonts and temporary macros. The message **RESET** appears briefly in the display.

Clearing certain error messages - When certain error messages appear in the display, this button can be pressed to clear them and set the printer on line. Pressing this button also overrides paper size messages. See the Error Messages section in Chapter 7 for more information.

The **CONTINUE/RESET** button also has several functions related to SelecType. See the section on the SelecType control panel for details.

MANUAL

When the printer is off line, use this button to alternate between manual and automatic paper feed modes.

SPECIAL   Press this button to set a higher fuser
                     temperature. Use this setting for envelopes
                     and heavy (27 through 34-pound) paper.
                     When this option is on, a pound sign (#)
                     appears at the right of the display. The
                     default setting is off.

ON LINE   Press this button to set the printer on line
                     or off line. This button is disabled in the
                     SelecType mode.

SelecType Overview

The SelecType feature lets you control many of your printer's functions, from the simplest to the most complex.

With SelecType's menu-based system, you can easily change the printer's configuration without DIP switches. (It is necessary to use DIP switches only if you need to select the RS-422A serial interface. See Chapter 2 for details.) Also, SelecType lets you select many font and print functions without software commands.

You can enter the main menu to perform routine printing functions. In addition, you can enter submenus to control serial interface settings and emulation options for HP and FX emulation.

Notes:

• Your application program may send printer commands that temporarily override the emulation submenu settings. If you are not getting the results you expect, check your application software settings.

• Epson FX emulation is available through an optional Epson FX Identity Cartridge. SelecType options for FX emulation are discussed in the manual that comes with the FX cartridge.

A brief description of each menu function is given below. See the SelecType Options section in this chapter for a detailed description of each function and its available options. The sections on the control panel and using SelecType explain SelecType operation.

Note: See the Quick Reference Card at the back of this manual for a map of SelecType menus.

Main Menu	**Interface Submenu**	**HP Emulation Submenu**
PAPER SIZE	BAUD RATE	FONT SOURCE
COPIES	PROT	FONT NUMBER
AUTO CONT	DATA BIT	FORM
EMULATION	PARITY	SYMBOL
I/F	STOP BIT	
STATUS PRT	ROBUST-XON	
POWER ON		
DATA BUFFER		
OVER LOAD		
BUZZER		

SelecType main menu

PAPER SIZE	Specifies the size of the paper.
COPIES	Selects the number of copies to print.
AUTO CONT (Automatic Continue1	Lets the printer continue printing instead of stopping under certain error conditions.
EMULATION	Allows you to select the emulation mode and enter the emulation submenus.
I/F (Interface)	Allows you to set up the printer's interface to conform to the requirements of your computer.
STATUS PRT	Allows you to run the status print test each time the printer is powered on.
POWER ON	Selects either on line or off line mode when the printer is powered on.
DATA BUFFER	Sets the size of the data buffer in kilobytes.
OVER LOAD	Selects the data buffer overflow value.
BUZZER	Turns the buzzer on or off.

Interface submenu

BAUD RATE	Sets the data transfer rate.
PROT (Protocol)	Selects the protocol.
DATA BIT	Selects the number of data bits.
PARITY	Selects the parity.
STOP BIT	Selects the number of stop bits.
ROBUST-XON	Turns Robust-Xon on and off.

HP emulation submenu

FONT SOURCE	Sets the default font source location.
FONT NUMBER	Allows you to specify font number based on the font source selected.
FORM (Form Length)	Sets the number of lines that can be printed on the paper.
SYMBOL	Selects a symbol set.

The SelecType Control Panel

This section examines the SelecType portion of the control panel and describes the steps **necessary** to select SelecType functions and **change** options for each function.

The SelecType portion of the control panel consists of the display, the *SelecType* button, the ▲ and ▼ buttons, and the **SET** button. In addition, the **CONTINUE/RESET** button **has** several functions in SelecType.
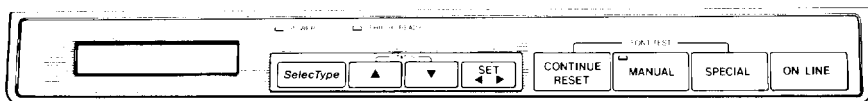
The left side of the display **shows** SelecType functions. The right side of the display **shows the** options for each function.

SelecType	Use **the** *SelecType* button to enter and exit SelecType. (After exiting SelecType, you must **use the CONTINUE/RESET** button as described below to implement your changes.)
▲	The ▲ button moves you up **a** menu or *increases* numeric values.
▼	The ▼ button moves you *down* a menu or *decreases* numeric values.

The main menu works in a loop, so that pressing the ▼ button at **the** last function takes you around to the first function; pressing **the** ▲ button at the first function takes you to the last function.

Use of these buttons is described in more detail in the following sections.

CONTINUE/RESET   This button has several uses related to SelecType.

Implementing SelecType changes - After you exit SelecType (with the printer off line), hold down **this** button for three seconds (until the message **RESET** appears) to make your SelecType settings take effect.

Initializing SelecType settings to factory defaults - In SelecType mode, hold down the **CONTINUE/RESET** button for three seconds (until the message **INITIALIZE** appears). Then hold down the button for three more seconds (until the message **RESET** appears) to return all SelecType functions to the factory settings. See the section on initializing SelecType for full details.

> ⊘ **CAUTION:** This initializing procedure returns all SelecType options to their factory settings, cancelling all changes you have made. It should be used with care.

SET   Use the **SET** button to select and set
◀ ▶   SelecType options.

Using SelecType

This section describes how to change SelecType functions. For descriptions of **each** available option, see **the** SelecType Options section later in this chapter. You **need to** perform several basic steps each time you use SelecType. Details follow the list below:

- Enter SelecType
- Display main menu functions
- Enter menu options
- Set **an** option
- Display submenu functions and select submenu options (if desired)
- Exit SelecType
- Reset the printer with the **CONTINUE/RESET** button.

Details of each step are provided below.

Enter SelecType

To enter SelecType, set the printer off **line** by pressing **the ON LINE** button. Then press the *SelecType* button. You are **now** in the main menu, which contains these menu functions:

> **PAPER SIZE**
> **COPIES**
> **AUTO CONT**
> **EMULATION**
> **I/F**
> **STATUS PRT**
> **POWER ON**
> **DATA BUFFER**
> **OVER LOAD**
> **BUZZER**

> PAPER SIZE = LTR*

The left side of the display shows menu functions. The right side **shows** options for each function. An asterisk (*) to **the** right of an option indicates that it is **the current setting.**

Display main menu functions

> **PAPER SIZE   =   LTR***

As soon as you enter the main menu, you see the first function and the current option for **that** function. The function is blinking. (Blinking functions or options appear shaded in this chapter.)

You **can** use the ▼   to move down the list of functions; you can use the ▲ to move back up **the list.**

Enter menu options

Move to the function you wish **to change.** Press the **SET** button to activate the list of options. The menu function stops blinking, and the menu option starts blinking, indicating that you can now choose an option.

PAPER SIZE = LTR*

Use the ▼ and▲   buttons to move forward and backward through the various options.

Set an option

When you reach the option you wish to use, press the **SET** button. An asterisk (*) appears next to the option, indicating that it **has** been set. The option stops blinking and the function starts blinking. To implement your SelecType **changes,** see **the** section on exiting SelecType later in this chapter.

If you want to return to **the** menu functions *without* setting a new option, make sure the current option **(the one with the** asterisk) appears in the display. (If necessary, use the arrows to move to the current option.) Press the **SET** button. The option stops blinking and the menu function begins blinking. You can **now move to a new** function.

Display submenu functions and select options

When you want to enter the emulation or interface submenus **from** the SelecType main menu, follow the steps described below.

Note: Options for each function are described in **the** SelecType Options section later in **this** chapter.

HP emulation submenu

To enter the emulation submenu, follow the steps described below:

1. Press **the ▲ or ▼** button **until you see** the **EMULATION** function in the display.

2. Press the **SET** button to **switch** to the current option.

3. If **necessary,** use the ▲ or▼ button to select **the HPL J2** option.

EMULATION = HPLJ2*

4. Press the **SET** button again to set the emulation.

5. Press the **SET** button a third time to enter the emulation submenu, where you can change these options:

    FONT SOURCE
    FONT NUMBER
    FORM
    SYMBOL

6. Use the ▲ or▼   button to select a function to **change.**

    > **Note:** This submenu does not work in a loop. Pressing **the** ▲ button when the first item is displayed or the   ▼ button when **the** last item is displayed causes you to exit the emulation submenu and return to the main menu.

7. Press the **SET** button to activate the option. The function stops blinking, and **the** option starts blinking.

8. Use the ▲ or▼   button to move to **the** option you **want** to set.

9. Press the **SET** button. An asterisk (*) appears next to the option, indicating that the new option has been set. The option stops blinking; the function starts blinking.

10. To exit the emulation submenu and return to **the** main menu, use the ▲ or▼   button to take you back to the main menu. The **message EMULATION = HPLJ2*** appears.

    If you wish to exit SelecType at this point, see **the** section on exiting SelecType later in this chapter.

Interface submenu

To enter the interface submenu from the main menu, follow the steps below:

1. Press **the** ▲ or▼ button until you see **the** I/F function in the display.

2. Press the **SET** button to activate the menu option. (The option starts blinking, indicating that it **has** been activated.)

3. If **the** I/F function **is set to the PARALLEL** option, press the ▼ button to select **the SERIAL** option.

4. Press the **SET** button to set the **SERIAL** option. An asterisk (*) appears next to **SERIAL.**

   ┌─────────────────────────┐
   │ **I/F=SERIAL***   │
   └─────────────────────────┘

5. Press the **SET** button a third time to enter the interface submenu, where you can **change** options for **the** menu functions listed below. (The SelecType Options section in this chapter describes options for these functions in detail.)

   BAUD RATE
   PROT
   DATA BIT
   PARITY
   STOP BIT
   ROBUST-XON

6. Use the ▲ or ▼ button to move to a function you want to change.

   ┌──┐
   │ **Note:** This submenu does not work in a loop. Pressing the ▲ │
   │ button when BAUD **RATE** is displayed or pressing **the** ▼   │
   │ button **when ROBUST-XON** is displayed causes you to exit **the** │
   │ submenu and return to the main menu.   │
   └──┘

7. Press the **SET** button to activate the option. The function stops blinking, and **the** option starts blinking.

8. Use the ▲ or▼ button to move to **the** option you want to set.

9. Press the **SET** button. An asterisk (*) appears next to the option, indicating that the **new** option has been set. The option stops blinking and the function starts blinking.

10. To exit **the** emulation submenu and return to the main menu, use the ▲ or▼ button to take you back to **the** main menu. The **message I/F** = SERIAL* appears in the display.

If you wish to exit SelecType at this point, see the section below **on** exiting SelecType.

Exit SelecType and reset the printer

To exit SelecType **(from** any main menu or submenu function) and implement your changes, follow these steps:

1. When you **have** set all the options you want, press the *SelecType* button. The printer is set off line.

2. Hold down the **CONTINUE/RESET** button for three seconds (until **the message RESET** appears) to implement your changes. The options are implemented in the printer's **memory** until you **change them** or initialize them to the factory **settings.**

> **Note:** To implement **changes to the DATA BUFFER, OVER LOAD,** and interface submenu settings you must also turn the printer off. Remember to leave the printer off for at least five seconds before turning it back on.

Initializing SelecType to factory default settings

To initialize SelecType options, returning them to **the** factory settings, follow the steps below. (Factory settings are marked with an asterisk (*) in the SelecType Options section.)

1. Press **the ON LINE** button to set **the** printer off line.

2. Press **the SelecType** button to enter SelecType. This **message** appears:

   ```
   PAPER SIZE = LTR*
   ```

3. Hold down **the CONTINUE/RESET** button for three seconds until the message **INITIALIZE** appears in the display.

4. Your printer is set off **line.** This message appears in **the** display:

   ```
   OFF LINE LTR
   ```

5. Hold down the **CONTINUE/RESET** button for three more seconds until the **message RESET** appears in the display.

6. Your printer is set on line. This message appears in the display:

   ```
   ON LINE LTR
   ```

7. If initializing SelecType **changes** your **DATA BUFFER, OVER LOAD,** or interface submenu settings, you should also turn off the printer to save these settings. (Remember to wait for at least five seconds before turning the printer back on.)

SelecType practice example

To better understand how to use SelecType, you **may want to try** this example.

Turning off the buzzer

This example **shows how** to turn off the buzzer.

1. Press the SelecType button to enter SelecType. This message appears:

PAPER SIZE = LTR*

2. Press the ▼ button nine times or simply press the ▲ button **once**, until **the** BUZZER = ON* appears in the display. The word BUZZER is blinking.

3. Press the **SET** button to move to **the** list of buzzer options. The word ON starts blinking.

4. Press the ▼ button to move to the **OFF** option.

BUZZER = OFF

5. Press the **SET** button to set the option. The asterisk (*) **now** appears **next** to the word OFF. The word BUZZER starts blinking again.

BUZZER = OFF*

Now exit SelecType by pressing the SelecType button. Then hold down the **CONTINUE/RESET** button for three seconds until **RESET** appears in the display.

SelecType Options

This section describes in detail each SelecType menu option.

Main menu options

When you enter the SelecType main menu by setting the printer off line and pressing the **SelecType** button, you can change any of the menu functions listed below:

PAPER SIZE
COPIES
AUTO CONT
EMULAT I ON
I / F
STATUS PRT
POWER ON
DATA BUFFER
OVER LOAD
BUZZER

Options for each menu function are described below. An asterisk (*) is shown to the right of the factory default setting.

```
PAPER SIZE = LTR*
```
LTR*
LGL
A4
EXEC

The four paper size options are listed below:

LTR	Letter size paper (8.5 x 11 inches)
LGL	Legal size paper (8.5 x 14 inches)
A4	European style (210 x 297 mm)
EXEC	Executive (7.25 x 10.5 inches)

COPIES = 01*

01 through 99

You can change the setting to print between one and 99 copies of **each** page.

AUTO CONT = ON*

ON*
OFF

When this option (automatic continue) is on, your printer automatically continues printing after a 10 second pause when one of the following errors occurs: paper size, error 20 (memory overflow), error 21 (page too complex), error 22 (communication error), and error 40 (parity/baud rate error>. When this option is off, you must press the **CONTINUE/RESET** button to continue printing. See Chapter 7 for details on error messages.

EMULATION = HPLJ2*

HPLJ2*

This option allows you to enter the HP emulation submenu (described in **the** following section). When an optional Epson FX Identity Cartridge is installed, the printer also shows FX as an option. (The SelecType options for the FX cartridge are described in the manual **that** comes with the option.)

I/F = PARALLEL*

PARALLEL*
SERIAL

This option selects the printer interface. When **the** serial interface is set, this option is used to enter the interface submenu (described later).

| STATUS PRT = OFF* | ON
OFF*

When this option is on, a status print test is run each time the printer is powered on. See Chapter 2 for information on this print test.

| POWER ON = ON LINE" | **ON LINE"**
OFF LINE

When this option is set to on line, the printer is set on line after you turn on the printer. In **the** off line setting, the printer is set off **line** after you turn on the printer.

| DATA BUFFER = 02* | 01 through 99

This option sets **the** size of the data buffer in kilobytes.

| OVER LOAD = 10* | 01 through 40

This option selects the printer's data buffer overflow value. The options are percentages.

| BUZZER = ON* | **ON***
OFF

When this option is on, a buzzer sounds when a printer error occurs. When the option is **turned** off, the buzzer does not sound.

HP emulation submenu options

When you enter the HP emulation submenu, you can access any of the menu functions listed below. Accessing this submenu is described in the section on displaying submenu functions.

FONT SOURCE
FONT NUMBER
FORM
SYMBOL

Options for each function are described below. An asterisk (*) is shown to the right of the factory default option.

FONT SOURCE = I*

I *
1
2
S

This option selects the printer's font source. The options are listed below:

I	Internal font
1	Cartridge slot **1**
2	Cartridge slot 2
S	Downloadable soft font

Note: Only available options appear on your display.

FONT NUMBER = 00'

00 through 99

This option selects the printer's font number, based on **the** font source option selected above. For a list of available fonts and font ID numbers, print **the** font print test as described **on** page 2-8.

| FORM = 060* | **005-128** |

This option sets the form length (the number of lines printed on each page).

| SYMBOL = ROMAN8* | **Roman8*** |

Roman8*
ECMA-94 (Latin 1)
IBM-US
IBM - ON (Danish/Norwegian)
IS02 (International Reference Version)
IS04 (United Kingdom)
IS06 (ASCII)
I SO 10 (Swedish)
I SO 11 (Swedish)
IS014 (JIS ASCII)
I SO 15 (Italian)
IS016 (Portuguese)
IS017 (Spanish)
IS021 (German)
IS025 (French)
IS057 (Chinese)
IS060 (Norwegian 1)
IS061 (Norwegian 2)
I SO69 (French)
IS084 (Portuguese)
IS085 (Spanish: IBM)
GERMAN
SPANISH

This option sets the symbol set. A symbol set is a unique group of available characters. Each symbol set is designed to **meet the** needs of a specific application. See Appendix A for details.

Interface submenu options

The interface submenu is used to set options for the serial interface. If you are using a serial interface, the options listed below should be set **so that they match** the requirements of your computer.

BAUD RATE
PROT
DATA BIT
PARITY
STOP BIT
ROBUST-XON

Options for each menu function are described below. An asterisk (*) is shown to **the** right of the factory default setting.

BAUD RATE = 9600*

        19200
        9600"
        4800
        2400
        1200
        600
        300

This option sets the rate data is transferred from the computer to the printer. The computer and printer must be set to the same baud rate.

PROT = RDY/BSY(H)*

        RDY/BSY(H)*
        RDY/BSY(L)
        XON/XOFF

This option sets printer's communication protocol. A communication protocol keeps the computer from sending more information than the printer can handle. Most computers require RDY/BSY set to high. The RDY/BSY option is also referred to as DTR POLARITY.

| DATA BIT = 8* | **8***
7 |

This option sets the number of data bits in **each** character of information sent to the printer.

| PARITY = NONE* | **NONE***
000
EVEN
IGNORE |

This option sets the parity bit, which provides a basic form of error detection.

| STOP BIT = 1* | **1***
2 |

This option sets the number of stop bits on each character of information sent to the printer. Stop bits signal **the** end of a character.

| ROBUST-XON = ON* | **ON***
OFF |

When this option is set to **ON**, additional Xon's are transmitted at one-second intervals until data is received. Only one Xon is transmitted **when this** option is set to **OFF.** This option should normally be set to **ON**, since **most** computers run using the **ON** setting.

Chapter 4
Paper Handling

Selecting Paper

With the laser printer, you can print on many sizes and types of paper. You can also use other media, such as envelopes, labels, and overhead projector transparencies. The printer feeds most types of paper automatically from the paper cassette, while special print media and special paper require manual feeding for greater control.

The type of paper you use in the printer directly affects the quality of the material you print.

A printed image is made up of many tiny dots of toner. If the paper is rough, the edges of the letters become ragged because some of the dots fall into indentations on the paper. The smoother the paper used, the better your printing will look

You should use especially smooth paper for printing originals that will be used to make reproductions. Because reproduction introduces its own raggedness to the edges of the letters, you want to start with the best originals possible.

Below are some recommendations for selecting paper and other print media for your printer.

Note: Since the quality of a particular paper may be changed by the manufacturer at any time, Epson cannot guarantee any particular brand or type of paper. Be sure to test samples of paper stock before purchasing large quantities or printing large jobs.

Standard office paper — You can use the paper cassette to automatically feed most types of 16 to 27 lb. (60 g/m^2 to 101 g/m^2) paper. This typically includes such paper as copier paper, memo sheets, cotton bond, and letterhead. If you feed paper manually through the manual feed slot, you can use 14 to 34 lb. (52 g/m^2 to 128 g/m^2) paper.

For best results, use paper made especially for laser printers. Paper made for plain-paper copiers is also a good choice.

If you want to use less expensive paper, test it thoroughly before regular use. Paper should be of good quality, relatively smooth, and readily available. Also, keep in mind that if the paper is textured or too rough, your printed output **may not** be as clear.

Do not use paper that is sensitive to silicon oil.

Special paper — You **can** use colored or three-hole punched paper as long as it meets the weight limits given above for standard office paper. However, do not use coated paper.

Labels — Use only labels designed for laser printers or plain-paper copiers in your printer. When printing labels, you should use the faceup output tray; this keeps the labels from curling or coming off their backing **sheet.** (Face-up printing is described in the section on paper delivery choices.)

To prevent the adhesive from coming into contact with printer parts, use only labels that completely cover the backing **sheet so that** there are no gaps.

You should also test **the** label sheet for leaking adhesive by pressing an ordinary sheet of paper on top of a **sheet** of labels. If **the** paper sticks at all, the labels should not be used.

Other materials — You can use overhead projector transparencies and adhesive drafting film if they are made for use with plain-paper copiers or laser printers. These materials should be ejected faceup into the face-up paper tray.

Selecting a Paper Size

The default paper size setting in SelecType is **L TR** for letter-size paper. If you are using a different size paper, **change the PAPER** SIZE setting in SelecType. You may also need to adjust the paper guides on the paper cassette to match the size of the paper you **want to** use.

The table below lists all of the paper sizes on the SelecType menu.

LETTER	8.5 x 11 inches
LEGAL	8.5 x 14 inches
A4	210 x 297 mm
EXECUTIVE	7.25 x 10.5 inches

Printing Methods Summary

You have several choices to make when printing. These choices depend mainly on the type of paper or other print media you use.

Paper delivery method — You can choose between face-up output and face-down output.

Paper feed method — You can select either automatic or manual paper feed.

SPECIAL button — You should press this button before printing envelopes or heavy paper.

The following table shows recommended settings for different print media. (If you wish to try other settings, be sure to test print a few sheets before regular use.) Paper feed and paper delivery methods are described in the following sections.

	Paper Feed	SPECIAL Button	Paper Delivery
Thin Paper (14 - 16 lb.) (52 - 60 g/m²)	Manual	No	Face-up or Face-down
Regular Paper (16 - 27 lb.) (60 - 101 g/m²)	Auto	No	Face-up or Face-down
Heavy Paper (27 - 34 lb.) (101 - 128 g/m²)	Manual	Yes	Face-up
Envelopes	Manual	Yes	Face-up
Transparencies	Manual	Optional	Face-up
Labels	Manual	Optional	Face-up

Paper Delivery Choices

Your laser printer can deliver paper facedown on top of the printer or faceup into the face-up output tray. The advantage of printing facedown is that when the printed stack is turned over, the pages are collated from first page to last. On the other hand, the face-up output tray gives you immediate viewing of your printed output. The faceup method of delivery is necessary for printing on media that require a straight-through paper path, such as envelopes, labels, heavy paper, and overhead transparencies.

To select faceup printing, simply move the paper path selector (located on the left side of the printer) to the down position. Also be sure that the face-up output tray is installed. (See Chapter 1 for details.) To select face-down printing, move the paper path selector to the up position.

Paper ejected face down

Paper path selector

Paper path selector

Paper ejected face up
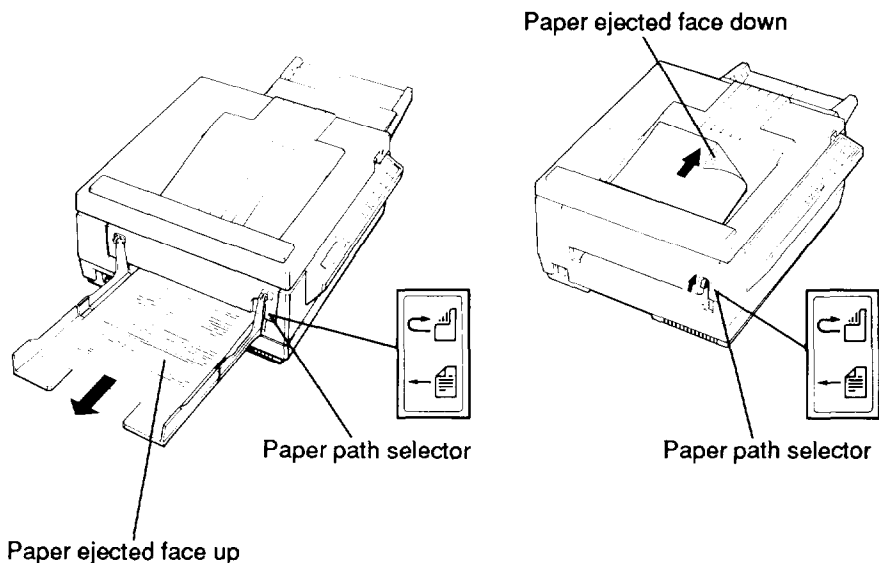
Paper Feed Methods

The paper cassette holds up to 150 sheets of 20 lb. paper for automatic printing. Additionally, the manual feed tray, on top of the paper cassette, allows you to hand-feed single sheets of paper.

Automatic printing

To print automatically, follow the steps listed below.

Remove the paper cassette.

Open the manual feed tray on the paper cassette. Slide the paper guides all the way apart, as shown below.
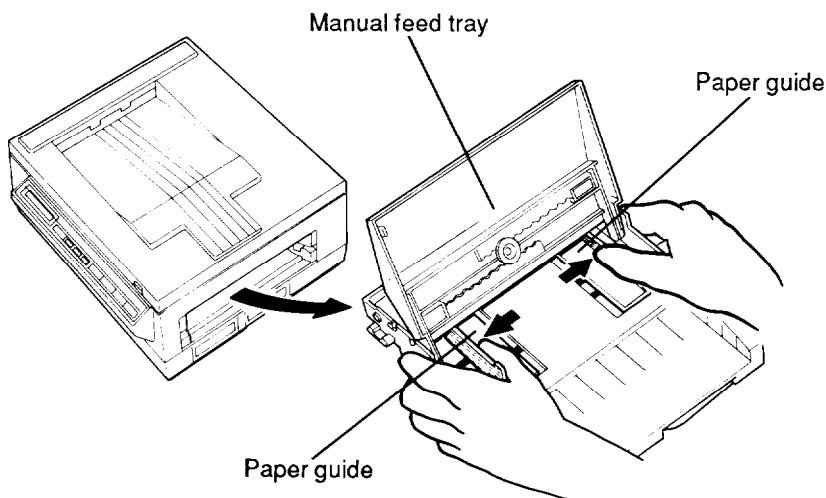
3. Take a stack of paper and fan it as shown. Next, tap the edges of the paper on a flat surface to even up the stack.
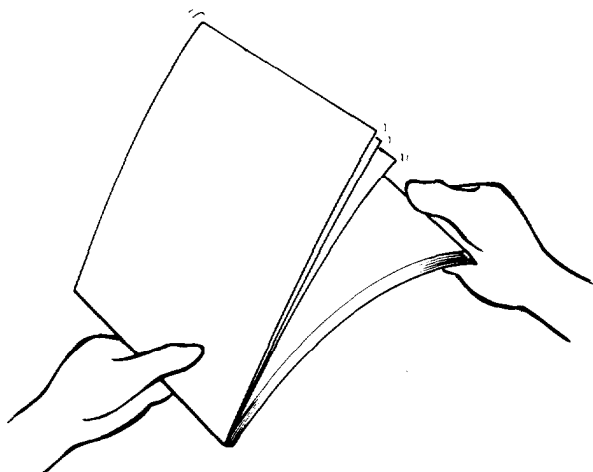
4. Insert the stack of paper into the paper cassette, **making** sure that the top of the stack does not cover the red line on the inside of the paper cassette. Push the paper in gently as far as it can go.

Red line
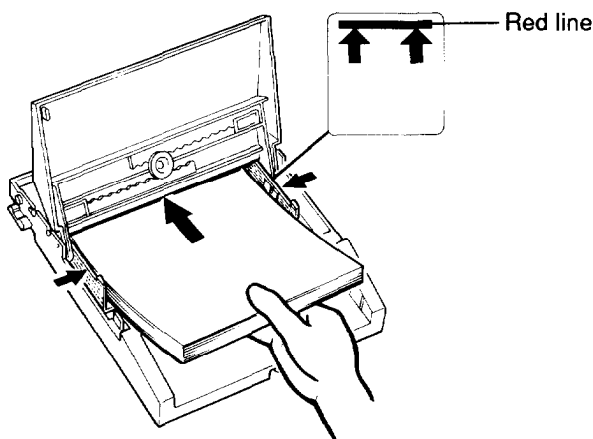
Note: Additional instructions for printing on special paper types are given below.

- To print on letterhead or three-hole punched paper, load it face-up, with the top of the paper pointing into the printer.

- To print on the back of a printed page, load the paper with the printed side face-down, top of the page in first. To reduce paper jams, manual feed is recommended for two-sided printing. (When you print on both sides of a page, the print quality on the second side may not be as good as on the first.)

- To print on legal-size paper, pull out the paper support beneath the paper cassette as shown below.
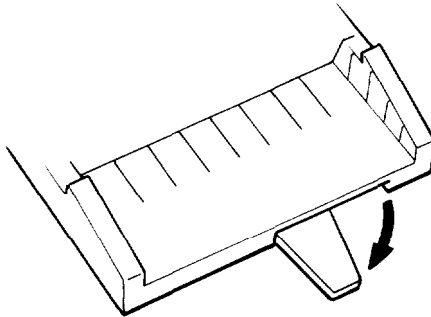
5. Slide the paper guides together (if necessary) until they are both resting lightly against the paper.

6. Close the manual feed tray.

7. Locate the paper cassette opening on the right side of the printer. Align the hooks on each side of the cassette with the slots on each side of the opening.
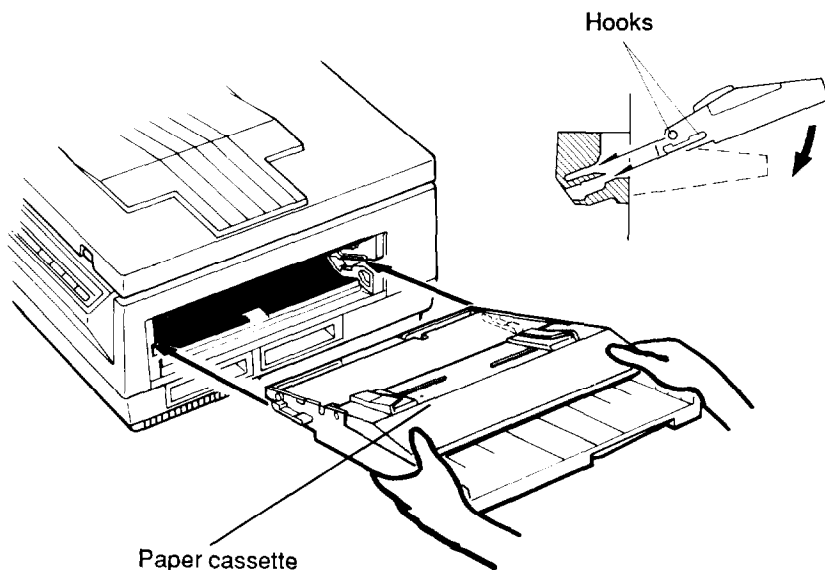
8. Reinsert the paper cassette into the printer with the arrow on the side of the cassette pointing into the printer. Push the cassette in until it can go no further and lower the end of the cassette (the end you load paper into) until the cassette drops into place.

> **CAUTION:** It is particularly important to lower the cassette into place. If the cassette is not installed properly, the message **PAPER** EMPTY appears in the display.

9. For envelopes and paper weights of 27 to 34 lb. **(101 to 128** g/m^2), press **the SPECIAL** button. A pound sign (#) appears at the right of **the** display.

10. If you want face-up delivery, set the paper path selector to the down position.

11. If the paper you have just loaded is a different size than the paper you last used, set the SelecType option for the new paper size, as described in Chapter 3.

12. Press the **ON LINE** button to set the printer on line.

Now your laser printer is ready to print.

Feeding paper manually

If you want to print on mailing labels, **heavy** paper (over 27 lb. or 101 g/m^2), light-weight paper (14 through 16 lb. or 52 through 60 **g/m^2),** envelopes, or transparencies, or if you are printing a small job on a different type of paper than is already in the cassette, you can hand-feed **the** paper using the manual feed tray.

You can manually feed paper ranging in size from 3.2 x 5.0 inches (82 x 127 mm) to 8.5 x 14.0 inches (216 x 356 mm).

Note: For best results, it may be necessary to change the amount of paper in the paper cassette; it is recommended that you leave the cassette half-filled (half-way to the red line) during manual printing.

It is easy to hand-feed paper with the laser printer; just follow **the** steps listed below.

1. If the paper size you are printing on is different than the paper size you just used, use SelecType to select the **new** paper size as described in Chapter 3. (If you are using a non-standard paper size **that is not listed in** SelecType, skip this step.)

2. If the printer is on line, press the **ON LINE** button to set the printer off line. Set the printer for manual printing by pressing the **MANUAL** button on the control panel. The manual light comes on.
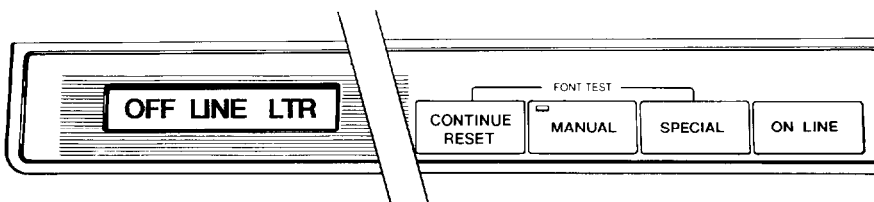
3. Open **the** manual feed guides wide enough to fit the paper being printed.

Manual feed guides
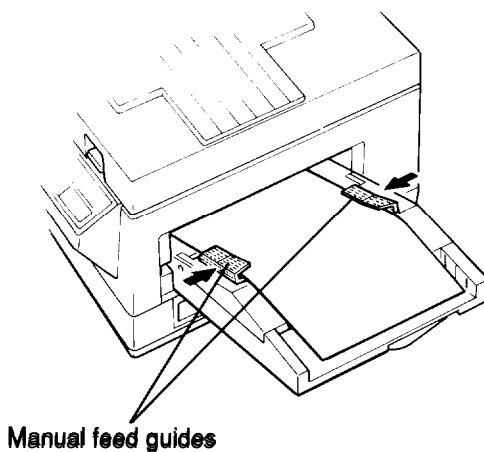
4. Insert a sheet of paper into the manual feed slot, gently pushing it in as far as it can go.
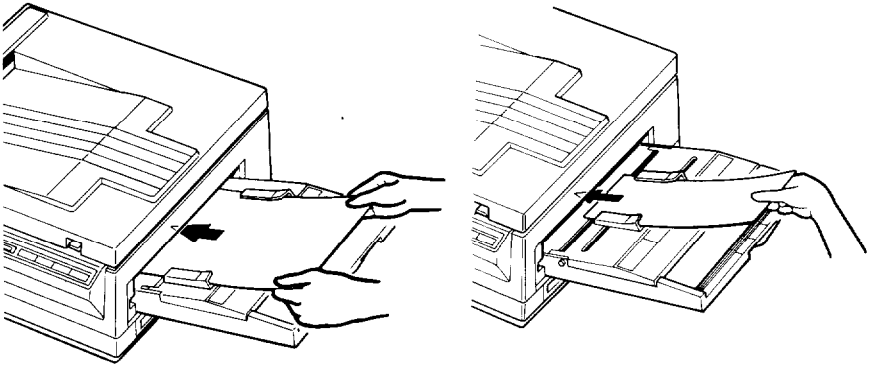
Note: Insert the paper with the side you want to print on face-up. For example, to print on the back of a printed page, load the paper with the blank side face-up.

---

5. Slide the manual feed guides together until they are both resting lightly against the paper.

6. For envelopes and paper weights of 27 to 34 lb. (101 to 128 g/m^2), press the **SPECIAL** button. A pound sign (#) appears at the right of the display **when** you press this button.

7. For transparencies, mailing labels, envelopes, and thick paper, set the paper path selector to the down position for face-up delivery.

8. Press the **ON LINE** button to set the printer on line.

9. Use your application software to print your document. The message **PUSH MANUAL KEY** appears in **the** display.

10. Push the **MANUAL** button again to print the first page.

11. Insert the next sheet of paper and press the **MANUAL** button again. Proceed in **this** manner until you have finished the print job.

12. When you have completed manual printing, set the printer off line by pressing the **ON LINE** button. Next, press **the MANUAL** button. (The manual light goes out.) Then press **the ON LINE** button to set **the** printer back on line.

You may now resume normal printing.

Chapter 5
Printer Modes

HP Emulation

Your laser printer offers HP emulation which enables you to use application programs written for HP LaserJet series II printers.

> **Note:** Epson FX emulation is available with an optional emulation cartridge. The Epson FX Identity Cartridge lets you use software written specifically for Epson FX printers. If you install the FX Identity Cartridge, you must use SelecType to choose FX emulation. See the manual that comes with the cartridge for further information.

HP emulation lets you use commercial software designed for the HP LaserJet series II printer. Simply follow the software's instructions for printing with an HP LaserJet series II printer.

Using HP emulation mode

This section gives you information about using HP emulation. It describes the unique features of the ActionLaser's HP emulation, as well as the differences between the printer's HP emulation and printing with the HP LaserJet itself.

Unique features

Certain ActionLaser printer functions give you greater versatility than you get with an HP LaserJet series II printer. These include the following:

- The ability to print on different sizes of paper without changing the paper cassette.

- An easy-to-use control panel.

Printer menus

Many application programs let you specify the type of printer you're using. Application programs often provide an installation or setup procedure that presents a list of printers to choose from.

To take advantage of HP emulation, simply choose a printer from the list below. They are listed in order of priority.

HP LaserJet series II
HP LaserJet Plus"
HP LaserJet"

The application program's menu may list a number of more specific choices corresponding to various HP LaserJet font cartridges. (The choices are labeled with capital letters, such as A, B, or C.)

Fonts and font cartridges

There are six resident fonts in your printer. These correspond to the resident fonts for the HP LaserJet series II printer. They are:

Courier	12 point	portrait
Courier	12 point	landscape
Courier bold	12 point	portrait
Courier bold	12 point	landscape
Line printer	**a.5** point	portrait
Line printer	**a.5** point	landscape

In addition, the cartridge slot on your printer lets you access a wide variety of other fonts available on font cartridges.

Installing a font cartridge—To install a font cartridge, follow these steps:

1. Press the **ON LINE** button to set the printer off line.

> ⚠️ **CAUTION:** Never insert or remove the cartridge while the printer is on line.

2. Insert the font cartridge (with the label facing up and the connectors pointing into the printer) into the cartridge slot on the lower right side of the printer. Press firmly until it clicks into place.
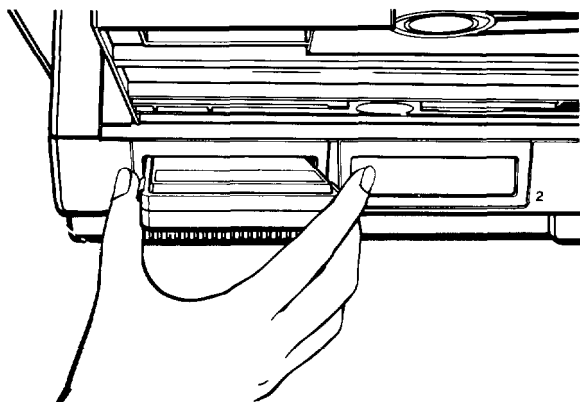
3. Press the **ON LINE** button to set the printer on line.

Removing a font cartridge—To remove a font cartridge, follow these steps:

1. Press the **ON LINE** button to set the printer off line.

> ⚠️ **CAUTION:** Never insert or remove **the** cartridge while the printer is on line.

2. Hold the edges of the cartridge and slowly pull it from the slot.

3. Press **the ON LINE** button to set the printer on line.

Reset

In HP emulation mode, you can reset **the** printer in the following three ways:

*   By turning **the** power off and then back on

*   By holding down **the CONTINUE/RESET** button for three seconds **(with** the printer off line)

*   By sending the ESC E command.

The result varies depending upon **which** method you use, as shown in the table on **the** next page.

	Power Off/On	CONTINUE/RESET Button	ESC E Command
Data in Buffer	clears	clears	prints data in buffer and clears
Permanent Downloaded Fonts/Permanent Macros	clears	does not clear	does not clear
Temporary Downloaded Fonts/Temporary Macros	clears	clears	clears
SelecType Settings*	does not change	does not change	does not change

* After any reset, the printer is set to the SelecType settings, overriding any
  software commands that have been set.

Note: A font or macro can be designated "permanent" or
"temporary" through the use of printer commands.

Paper handling

With the ActionLaser, the paper size is not determined by the paper
tray as it is with an HP LaserJet printer. Use the **PAPER SIZE**
option in SelecType to set any of the four paper sizes supported by
the printer. See Chapter 3 for SelecType information.

If you set the paper size **with a** print command that differs from the size selected in SelecType, the message **PS** CHANGE appears. Press the **CONTINUE/RESET** button to clear the error; the printer is set off **line.**

After clearing the error, you have two options:

1. **Change the** paper in the cassette; then enter SelecType and change the paper size to match. Press **the ON LINE** button after exiting SelecType to continue printing.

2. Alternatively, press the **ON LINE** button to continue printing on the current paper. (The message **PAPER** SIZE **ERROR** appears in the display.)

For certain nonstandard sizes of paper, you may need to use the manual feed option described in Chapter 4.

Character clipping

If a character is partially outside the printable area, the HP LaserJet does not print any portion of the character. The ActionLaser prints that portion of **the** character **within** the printable area, making it easier to tell when you have exceeded your margins.

HP printer commands

This section lists the printer commands supported in HP emulation. These commands emulate the HP LaserJet series II printer.

A printer command, also called an escape sequence, is a string of characters that is sent to the printer. The printer interprets the character string as a command to select a specific feature.

Most software packages have printer commands already embedded in them, so you may never need to use the information in this section.

An escape sequence is made up of an escape control code followed by one or more characters in succession.

For more information on printer commands, see the *Hewlett-Packard LaserJet series II Technical Reference Manual.*

Job control commands

Function	Printer Command
Control Codes	
Backspace	BS
Line Feed	LF
Form Feed	FF
Carriage Return	CR
Shift Out	s o
Shift In	SI
Escape	ESC
Bell	BEL
Horizontal Tab	HT
Space	SP
Reset	
Printer reset	ESCE
Number of copies	ESC&l#X
# = Number of copies.	
Paper Input control	
Eject page	ESC&lOH
Feed from tray	ESC&l1H
Manual feed	ESC&l2H

Function	Printer Command
Page Length and Size	
Paper size	
Executive	ESC&l1A
Letter	ESC&l2A
Legal	ESC&l3A
A4	ESC&l26A
Page length	ESC&l#P
# = Number of lines.	
Orientation	
Portrait	ESC&l0O
Landscape	ESC&l1O
Margins and Text Length	
Top margin	ESC&l#E
Text length	ESC&l#F
# = Number of lines.	
Set left margin	ESC&a#L
Set right margin	ESC&a#M
# = Column number.	
Clear side margins	ESC9
Perforation Skip Mode	
Enable	ESC&l1L
Disable	ESC&l0L
Horizontal Column Spacing	
Horizontal motion index	ESC&k#H
# = Number of 1/120-inch increments.	

Function	Printer Command
Vertical Line Spacing	
Vertical motion index	ESC&l#C
# = Number of l/48-inch increments.	
Lines per inch	
1 lines per inch	ESC&l1D
2 lines per inch	ESC&l2D
3 lines per inch	ESC&l3D
4 lines per inch	ESC&l4D
6 lines per inch	ESC&l6D
8 lines per inch	ESC&l8D
12 lines per inch	ESC&l12D
16 lines per inch	ESC&l16D
24 lines per inch	ESC&l24D
48 lines per inch	ESC&l48D

Cursor positioning

Function	Printer Command

Vertical and Horizontal

Vertical

Vertical (lines)
\# = Number of rows. → ESC&a#R

Vertical (decipoints)
\# = Number of decipoints. → ESC&a#V

Vertical (dots)
\# = Number of dots. → ESC*p#Y

Horizontal

Horizontal (columns)
\# = Number of columns. → ESC&a#C

Horizontal (decipoints)
\# = Number of decipoints. → ESC&a#H

Horizontal (dots)
\# = Number of dots. → ESC*p#X

Half-line feed → ESC =

End-Of-Line Termination

Line termination

CR=CR LF=LF FF=FF	ESC&k0G
CR=CR+LF LF=LF FF=FF	ESC&k1G
CR=CR LF=CR+LF FF=CR+FF	ESC&k2G
CR=CR+LF LF=CR+LF FF=CR+FF	ESC&k3G

Push/Pop position

Push	ESC&f0S
Pop	ESC&f1S

Font selection

function	Printer Command
symbol Set Selection	
Primary symbol sets	
Line draw	ESC(0B
IS0 ASCII	ESC(0U
Roman-8	ESC(8U
Roman Extension	ESC(0E
IS0 Norway 1	ESC(0D
IS0 United Kingdom	ESC(1 E
IS0 France	ESC(0F
Germany	ESC(0G
IS0 Italy	ESC(0I
IS0 Sweden	ESC(0S
Spain	ESC(1S
Math-7	ESC(0A
IS0 JIS ASCII	ESC(0K
Math-7 2	ESC(0M
IS0 Latin	ESC(0N
OCR-A	ESC(0O
IS0 Norway 2	ESC(1D
IS0 France 2	ESC(1F
IS0 Germany 2	ESC(1G
Katakana	ESC(1K
Technical	ESC(1M
OCR-B	ESC(1O
Legal	ESC(1U
IS0 China	ESC(2K
IS0 Spain 2	ESC(2S
IS0 IRV	ESC(2U
IS0 Sweden 2	ESC(3S
IS0 Portugal	ESC(4S
IS0 Portugal 2	ESC(5S
IS0 Spain 3	ESC(6S
OEM-1	ESC(7U

Function	Printer Command
Symbol Set Selection (continued)	
Primary symbol sets (continued)	
Greek-8	ESC(8G
Math-8	ESC(8M
PC-8	ESC(10U
PC-8 (D/N)	ESC(11U
Pi font	ESC(15U
Secondary symbol sets	
Line draw	ESC)0B
IS0 ASCII	ESC)0U
Roman-8	ESC)8U
Roman Extension	ESC)0E
IS0 Norway 1	ESC)0D
IS0 United Kingdom	ESC)1E
IS0 France	ESC)0F
Germany	ESC)0G
IS0 Italy	ESC)0I
IS0 Sweden	ESC)0S
Spain	ESC)1S
Math-7	ESC)0A
IS0 JIS ASCII	ESC)0K
Math-7 2	ESC)0M
IS0 Latin	ESC)0N
OCR-A	ESC)0O
IS0 Norway 2	ESC)1D
IS0 France 2	ESC)1F
IS0 Germany 2	ESC)1G
Katakana	ESC)1K
Technical	ESC)1M
OCR-B	ESC)1O
Legal	ESC)1U
IS0 China	ESC)2K
IS0 Spain 2	ESC)2S
IS0 IRV	ESC)2U

Function	Printer Command

Symbol Set Selection (continued)

Secondary symbol sets (continued)

IS0 Sweden 2	ESC)3S
IS0 Portugal	ESC)4S
IS0 Portugal 2	ESC)5S
IS0 Spain 3	ESC)6S
OEM-1	ESC)7U
Greek-8	ESC)8G
Math-8	ESC)8M
PC-8	ESC)10U
PC-8 (D/N)	ESC)11U
Pi Font	ESC)15U

Spacing

Primary spacing

Proportional	ESC(s1P
Fixed	ESC(s0P

Secondary spacing

Proportional	ESC)s1P
Fixed	ESC)sOP

Pitch

Primary pitch

10 CPI	ESC(s10H
12 CPI	ESC(s12H
16.66 CPI	ESC(s16.6H

Secondary pitch

10 CPI	ESC)s10H
12 CPI	ESC)s12H
16.66 CPI	ESC)s16.6H

Function	Printer Command
Point Size	
Primary point size	
7 Pt.	ESC(s7V
8 Pt.	ESC(s8V
8.5 Pt.	ESC(s8.5V
10 Pt.	ESC(s10V
12 Pt.	ESC(s12V
14.4 Pt.	ESC(s14.4V
Secondary point size	
7 Pt.	ESC)s7V
8 Pt.	ESC)s8V
8.5 Pt.	ESC)s8.5V
10 Pt.	ESC)s10V
12 Pt.	ESC)s12V
14.4 Pt.	ESC)sl4.4V
Style	
Primary style	
Upright	ESC(s0S
Italic	ESC(s1S
Secondary style	
Upright	ESC)s0S
Italic	ESC)s1S

Function	Printer Command
Stroke Weight	
Primary stroke weight	
Light (-3)	ESC(s-3B
Medium (0)	ESC(s0B
Bold (3)	ESC(s3B
Secondary stroke weight	
Light (-3)	ESC)s-3B
Medium (0)	ESC)s0B
Bold (3)	ESC)s3B
Typeface	
Primary typeface	
Line printer	ESC(s0T
Courier	ESC(s3T
Helvetica	ESC(s4T
Tms Rmn	ESC(s5T
Gothic	ESC(s6T
Prestige Elite	ESC(s8T
Secondary typeface	
Line printer	ESC)s0T
Courier	ESC)s3T
Helvetica	ESCs4T
Tms Rmn	ESC)s5T
Gothic	ESC)s6T
Prestige Elite	ESC)s8T
Font Pitch	
Font pitch (alternate method)	
Standard pitch	ESC&k0S
Compressed pitch	ESC&k2S

Function	Printer Command
Underline	
Enable fixed underlining	ESC&d0D
Enable floating underlining	ESC&d3D
Disable underlining	ESC&d@

Font management

Function	Printer Command
Font Management	
Specify font ID	ESC*c#D
# = Font ID number.	
Font and character control	
Delete all fonts	ESC*c0F
Delete all temporary fonts	ESC*c1F
Delete last specified font ID	ESC*c2F
Make temporary font	ESC*c4F
Make permanent font	ESC*c5F
Font Selection by ID Number	
Primary	ESC(#X
Secondary	ESC)#X
# = Font ID number.	

Soft font creation

Function	Printer Command
Soft Font Creation	
Create font (font header)	ESC)s#W [data]
# = Number of bytes.	
Download character	ESC(s#W [data]
# = Number of bytes.	
Specify character code	ESC*c#E
# = ASCII code number (decimal).	

Graphics

Function	Printer Command
Raster Graphics	
Resolution	
75 dots per inch	ESC*t75R
100 dots per inch	ESC*t100R
150 dots per inch	ESC*t150R
300 dots per inch	ESC*t00R
Start graphics	
Left-most position	ESC*r0A
Current cursor	ESC*r1A
Transfer	ESC*b#W [data]
# = Number of rows.	
End graphics	ESC*rB

Function	Printer Command
Rectangle Dimensions	
Horizontal size (width)	ESC*c#A
# = Number of dots.	
Horizontal size (width)	ESC*c#H
# = Number of decipoints.	
Vertical size (height)	ESC*c#B
# = Number of dots.	
Vertical size (height)	ESC*c#V
# = Number of decipoints.	
Rectangular Area Fill	
Fill rectangle area	
Rule	ESC*c0P
Gray scale	ESC*c2P
HP pattern	ESC*c3P
Gray scale pattern ID	
2% gray	ESC*c2G
10% gray	ESC*c10G
15% gray	ESC*c15G
30% gray	ESC*c30G
45% gray	ESC*c45G
70% gray	ESC*c70G
90% gray	ESC*c90G
100% gray	ESC*c100G
Pattern ID	
1 Horizontal lines	ESC*c1G
2 Vertical lines	ESC*c2G
3 Diagonal lines	ESC*c3G
4 Diagonal lines	ESC*c4G
5 Square Grid	ESC*c5G
6 Diagonal grid	ESC*c6G

Macros

Function	Printer Command
Macro ID and Control	
Macro ID	ESC&f#Y
# = Macro ID number.	
Macro control	
Start macro	ESC&f0X
Stop macro	ESC&f1X
Execute macro	ESC&f2X
Call macro	ESC&f3X
Enable overlay	ESC&f4X
Disable overlay	ESC&f5X
Delete macros	ESC&f6X
Delete all temporary macros	ESC&f7X
Delete macro ID	ESC&f8X
Make temporary	ESC&f9X
Make permanent	ESC&f10X

Programming aids

Function	Printer Command
Miscellaneous Features	
Enable display functions mode	ESCY
Disable display functions mode	ESCZ
Transparent print data	ESC&p#X [data]
# = Number of bytes.	
Self test	ESCz
End of Line Wrap	
Enable line wrap	ESC&s0C
Disable line wrap	ESC&s1C

Chapter 6
Maintenance and Transportation

Maintenance

Component	Life cycle (in pages)
Toner cartridge	1,500 pages
Cleaning pad	1,500 pages
Drum unit	10,000 pages*
Service overhaul	100,000 pages

"If you regularly print high density graphics (more than 20% page density), you need to replace the drum unit more often.

The toner cartridge and cleaning pad must be replaced about every 1,500 pages. (The initial toner cartridge lasts about 750 pages.) A TONER EMPTY message appears when it is time to change these components.

The drum unit must be replaced about every 10,000 pages. (If you regularly print high density graphics (more than 20% page density), you need to replace the drum unit at the same time you install the eighth toner cartridge.) When you replace the drum unit, it is also necessary to change the drum replacement cartridge, which monitors drum usage.

A CHANGE DRUM message appears when it is time to change the drum unit and drum replacement cartridge. Also, the indicator light on the drum replacement cartridge helps you monitor drum usage, so that you know **when** a drum change is imminent.

A service overhaul must be performed at 100,000 pages by an Epson Customer Care Center. Call 1-800-922-8911 for a referral.

Each of these procedures is described in detail in this chapter.

Maintenance Messages

The printer's display lets you know when you need to perform routine maintenance procedures. The toner cartridge and drum unit must be replaced on a regular basis. The messages described below tell you **when to** perform these tasks.

It is recommended that you keep in stock at least one drum unit and several replacement toner cartridges. See Appendix B for storage information.

Toner empty message

The initial toner cartridge, which is shipped with your printer, lasts about 750 pages. Replacement toner cartridges last about 1,500 pages. These page amounts are based on letter or A4-size pages **with** normal text printing (5 percent print density). If you print higher density graphics or use larger paper, the number of pages per cartridge may decrease. The number of pages can also vary if you **change the** print density control setting (described in Chapter 2).

The **TONER EM P T Y message** indicates that you need to do **the** following:

- Replace the toner cartridge
- Replace the cleaning pad, which is packed with your replacement toner cartridge
- Perform certain routine cleaning procedures, which take only a few moments. (Since cleaning your printer requires you to turn off the power, you **may want** to finish your print job before cleaning the printer.)

Changing the toner cartridge and cleaning pad

Replace the toner cartridge and cleaning pad as follows.

1. Prepare a clean flat surface to set the basket on. To catch excess toner that may remain in the used toner cartridge, it is recommended that you spread some paper on the surface.

2. Raise the top cover of your printer by lifting up on the latch.

WARNINGS:

- Opening the printer exposes the fusing unit, the orange area marked with a caution label. This unit is **very hot, so be careful** not to touch it.

- This **procedure** exposes the green drum. Because the drum **is light-sensitive,** it should not be exposed to room light for any longer than necessary (a few minutes at most). Thus, it is recommended that you cover the drum **unit** with a soft cloth or sheet of paper whenever the drum is exposed.

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3. Remove the basket from the printer and place it on the paper.

Basket
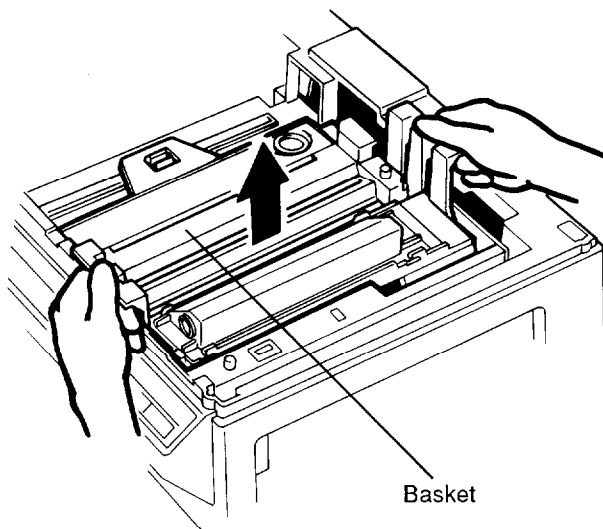
4. Locate the cleaning pad inside your printer. The cleaning pad is
   the long black pad with green felt handles located in a slot on
   the orange-colored fuser.

> **WARNING:** The fuser and the cleaning pad are very hot.
> Be careful to touch only the green felt handles on the pad
> when you remove it. Do not touch the fuser or the pad
> itself.

5. Carefully take hold of the green felt handles and lift out the used
   cleaning pad. (Be careful not to let dirt from the pad drop into
   the printer.) Discard the cleaning pad.
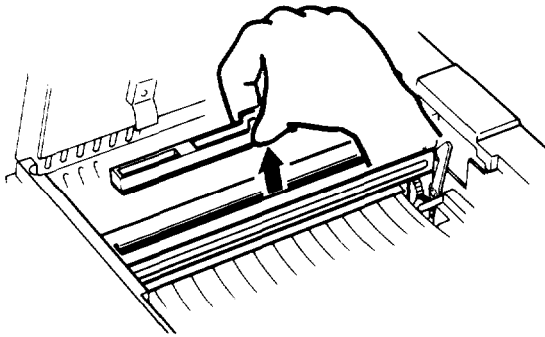
6. Locate the new cleaning pad, which was packed with your
   replacement toner cartridge.

7. Holding the green felt tabs on the new cleaning pad, insert the
    pad into the indentation on the fuser.
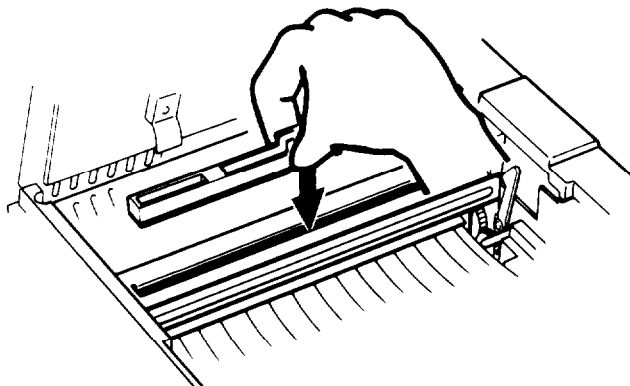
8. Now locate the toner cartridge, which is in the basket you
    removed earlier. Tap lightly on the used cartridge so that
    remaining toner drops into the developer unit.

9. Hold down the green button holding the toner cartridge in place on the developer unit. As you hold down the button, slide the toner cartridge toward the button to disengage it from the developer unit, as shown below.
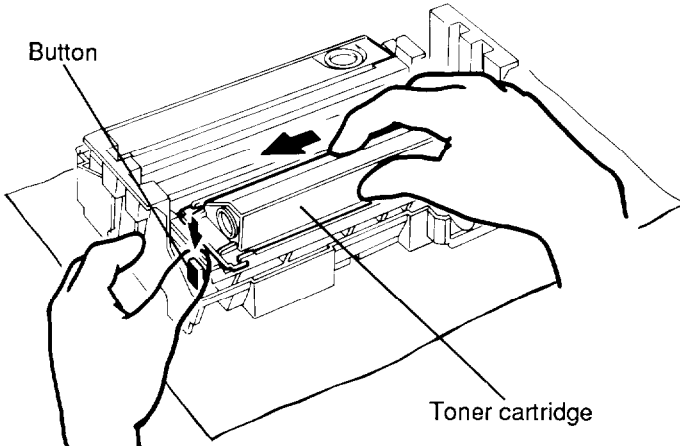
10. Lift off the cartridge and discard it. Avoid touching the bottom of the cartridge.
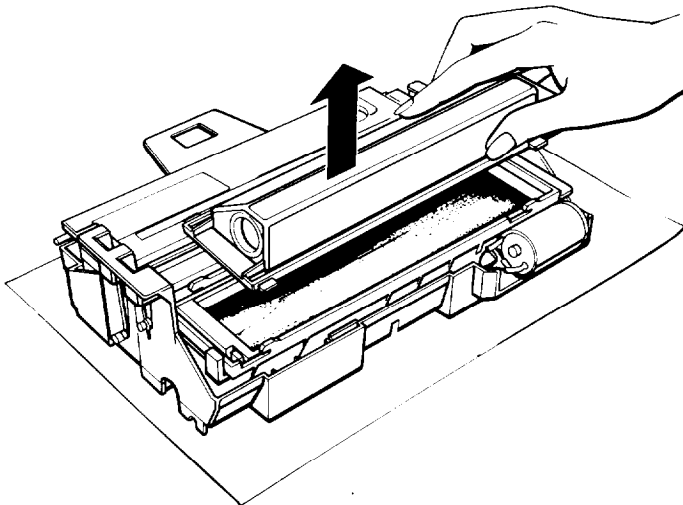
> **Note: Be** careful not to get any dust or dirt into the exposed
> developer **unit.**

11. Holding the new replacement toner cartridge horizontally,
gently shake it back and forth a few times to distribute the toner.
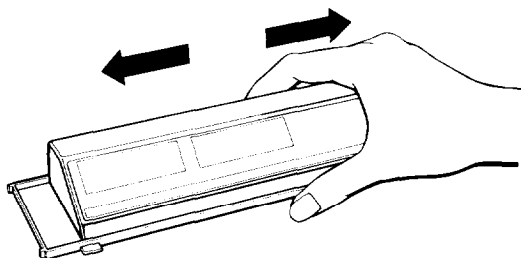
12. Hold the toner cartridge over the developer unit so that the label
is facing up, with the top of the label pointed toward the inside
of the basket. Align the four hooks on the cartridge with the slots
in the developer unit and set the cartridge onto the developer
unit.
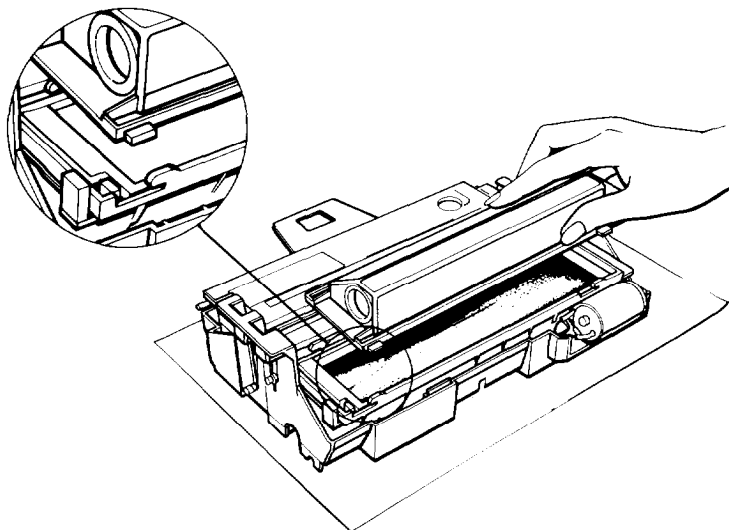
13. Hold down the green button. Pressing down on the toner cartridge, firmly slide the hooks on the cartridge into the slots on the developer unit. Then release the button to lock the cartridge into place. (You should see a second green button pop up to lock in the cartridge.)
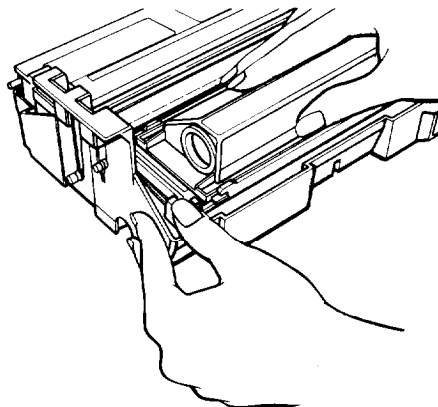
14. Now reinstall the basket. With the top cover of the printer open, align the arrow on the back of the basket with the arrow on the printer case. (The arrows point toward each other when the unit is properly installed.) Gently lower the basket into place.
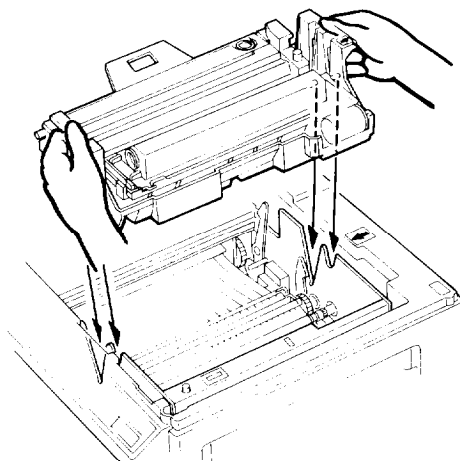
15. Press down simultaneously on the drum unit's two green handles until the drum unit clicks into place.
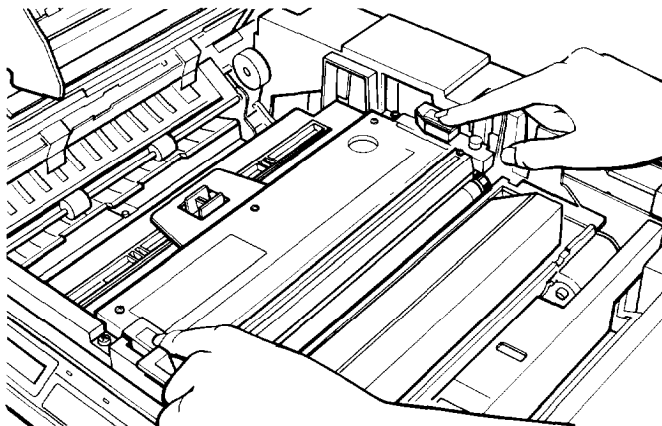
16. Unfasten the tape holding the clear plastic film in place on the replacement toner cartridge.

17. Pressing down on the toner cartridge to hold it firmly in place, pull the film up and out toward the back of the printer. Pull firmly until the other end of the film comes out of the cartridge.
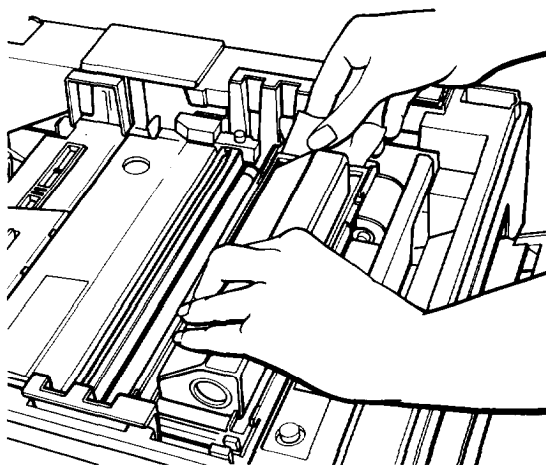
> ⚠ **CAUTION:** Once the toner cartridge has been installed, do not remove it until you are prompted to do so by the control panel display. Otherwise, toner can spill into the printer. See the transportation section in this chapter if you need to ship the printer when it has toner in it.

18. Check the indicator light on the drum replacement cartridge. (You should do this each time you change the toner cartridge.)
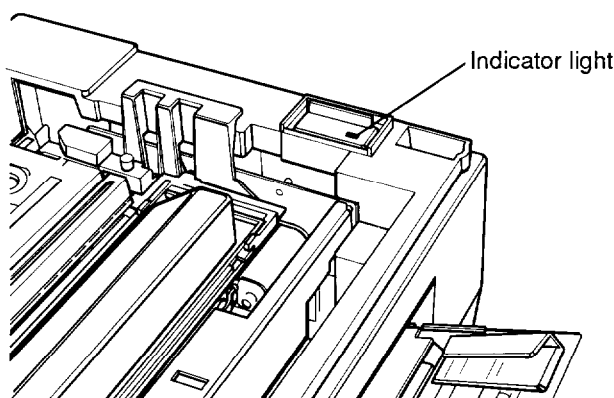
This indicator helps you monitor usage of the drum, which must be replaced every 10,000 pages:

- Green light (0 - 7,500 sheets): The drum unit can print at least 2,500 pages more and does not need to be replaced.

- Orange light (7,501 - 9,900 sheets): Make sure you have a drum unit in stock. You have fewer than 2,500 pages to print before the CHANGE DRUM message appears.

- Red light (9,901 - 10,000 sheets): You have fewer than 100 pages to print before the **CHANGE DRUM** message appears. You may wish to replace the drum unit as soon as you see **this** red light. If you wait until **CHANGE DRUM** appears, you need to follow a special procedure (described in the section on changing the drum) to complete your print job.

> ⚠ **CAUTION: If** you regularly print high density (more than 20 percent page density) graphics, you need to replace the drum unit more frequently. You must keep track of **the** number of toner cartridges you **have** used, and replace the drum unit and drum replacement cartridge at **the same** time you install the eighth toner cartridge. Do not wait for **the CHANGE DRUM** message to appear **on the** control panel. Overuse of **the** drum unit results in a reduction of print quality and increased **maintenance** requirements.

19. There are certain printer components inside the printer you must clean each time you replace the toner cartridge. See **the** Routine Printer Cleaning section on page 6-19. (you need to locate **some** isopropyl alcohol for cleaning purposes before cleaning the printer.)

> **Note:** Because it is necessary to turn off your printer before cleaning it, you may **want to finish your** print job as **soon as** you replace **the** toner cartridge and cleaning pad. If so, simply close **the** printer cover and press the **ON LINE** button. Be sure to clean your printer as soon as you have **finished** printing.

Change drum message

The **CHANGE DRUM message** indicates **that you** need to do the following:

- Replace the drum unit

- Replace the drum replacement cartridge

- Perform routine cleaning procedures, which take only a few **moments.**

The drum unit and drum replacement cartridge **must** be replaced every 10,000 pages. It is **necessary** to **turn** off the printer to replace the drum unit and drum replacement cartridge. However, you can finish your print job first by following **the** procedure described below.

Completing your print job before changing the drum

After the CHANGE DRUM message appears, you can print up to 100 pages more before changing the drum, as follows:

1. Print 10 pages at a time by pressing **the ON LINE** button. You can do this up to nine times for a total of 90 pages.

2. You **can** then print **one** page at a time by pressing the **ON LINE** button. You **can** do this for 10 more pages. Then you must change **the** drum unit.

Monitoring drum usage

You should check the indicator light on **the** drum replacement cartridge each time you change the toner cartridge. This indicator helps you monitor drum usage, as described on page 6-11. The indicator light lets you know in advance of the display panel when the drum unit should be changed.

> **CAUTION:** If you regularly print high density graphics (more **than 20** percent page density), you need to replace the drum unit more frequently. You must keep track of the number of toner cartridges you have used, and replace the drum unit and drum replacement cartridge at the **same** time you install **the** eighth toner cartridge. Do not wait for **the CHANGE DRUM** message to appear on the control panel. Overuse of the drum unit results in a reduction of print quality and increased maintenance requirements.

Changing the drum unit and drum replacement cartridge

Note: Before changing the drum, you should locate some alcohol to use for cleaning purposes.

1. Turn off your printer. (To finish your print job first, see the instructions above on completing your print job before changing the drum.)

2. Raise the top cover of your printer by lifting up on the latch.

WARNING: Opening the printer exposes the fusing unit, the orange area marked with a caution label. This unit is very hot, so be careful not to touch it.

3. Remove the basket and place it on a flat surface.
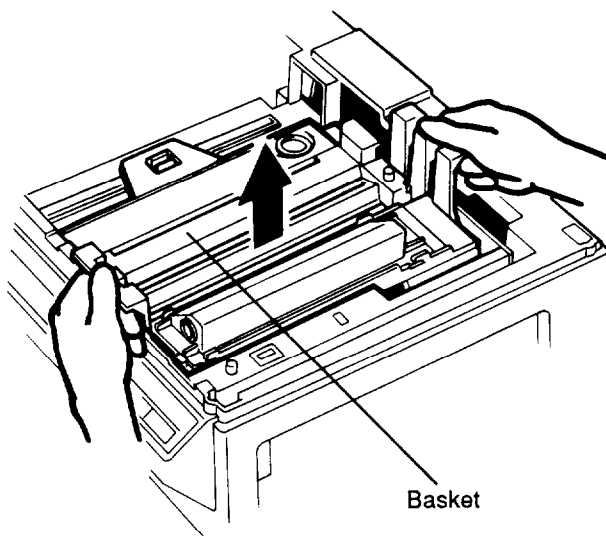
Basket

4. Remove the drum unit from the basket by lifting up on the green handles. Discard the drum unit.
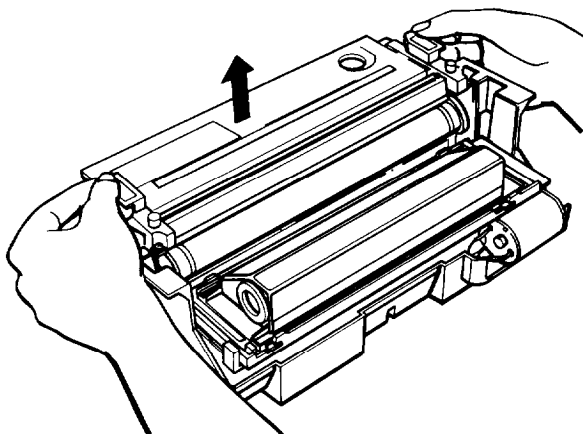
5. Unpack the new drum and the cotton swab (packed with the drum). Insert the drum in the basket.

> ⊙ **CAUTIONS:**
>
> • Do not touch the surface of the green drum.
>
> • The drum is light-sensitive and should not be exposed to room light for any longer than necessary (a few minutes at most). It is recommended that you cover the drum unit with a soft cloth or sheet of paper whenever the drum is exposed.

6. Locate the main charger wire, which extends along the length of the green drum inside a slot directly over the drum. Gently clean the main charger wire with the cotton swab by running the swab along the length of the wire. You need to insert the cotton swab a fraction of an inch into the slot to reach the wire.

> **Note:** The charger wire is thin and silver, so it is difficult to see.

Main charger wire
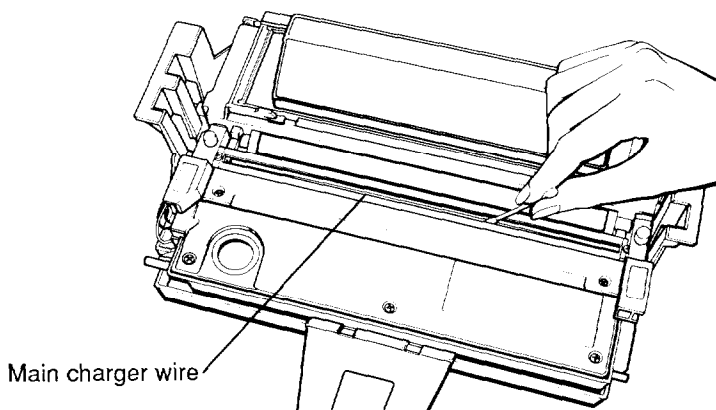
7. Now change the drum replacement cartridge. Locate the used drum replacement cartridge, which is in the right rear comer of the printer frame (with the printer cover open). Then pull out the used cartridge from the slot and discard it.
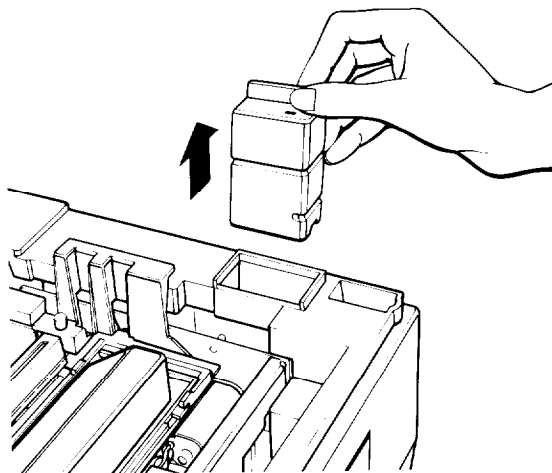
8. Insert the new drum replacement cartridge, which was packed with your drum unit, with the indicator light facing the front of the printer. Press down on the cartridge until it is inserted all the way.
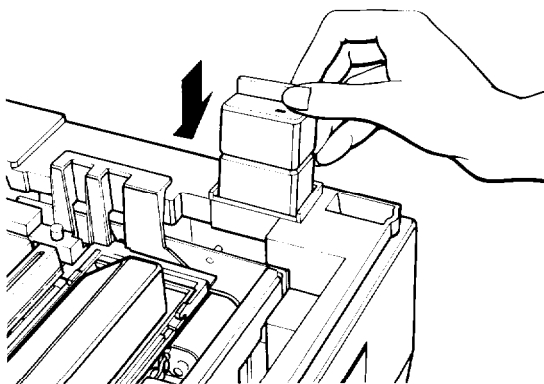
9. Store the developer cleaner, which **was** also packed with the drum, in a safe place for **future** use. You need to use the developer cleaner to clean the developer unit if vertical white lines appear on your printed page. (The General Printer Maintenance section of this chapter has details.)

Before reinstalling the basket with the new drum unit in your printer, be sure to perform the cleaning procedures described below.

Routine cleaning

There are certain printer components inside the printer you must clean each time you replace the drum unit. See the following section on printer cleaning.

Routine Printer Cleaning

It is necessary to clean certain printer components regularly to ensure optimal print quality. Cleaning should be performed whenever the drum unit or toner cartridge is replaced. You should also clean the components listed below if you are having problems with print quality, as discussed in Chapter 7.

Cleaning schedule

The toner cartridge is replaced about every 1,500 pages, and the drum unit is replaced every 10,000 pages. Each time you replace one of these components, you should clean the following items:

- Transfer charger wire and discharge wire
- Paper guide
- Basket
- Laser beam lens.

> Note: You should also clean each of these items if you are having print quality problems, as discussed in Chapter 7.

When replacing the drum, you should also clean the main charger wire on the new drum unit, as described in the section on replacing the drum unit.)

> **wARNIₙG:** You should turn off your printer and disconnect the power cord before cleaning your printer.

Cleaning the transfer charger and discharge wires

Follow the steps below to clean the transfer charger wire and discharge wire.

> **Note:** Locate some isopropyl alcohol to use for cleaning purposes before proceeding.

1. Make sure the printer is turned off; then disconnect the power cord from the wall outlet. Also be sure that the printer cover is open and that the basket is removed from the printer.

> **CAUTION:** This procedure exposes the green drum unit, which is in the basket. Because the drum is light-sensitive, it should not be exposed to room light for any longer than necessary (a few minutes at most). Thus, it is recommended that you cover the drum unit with a soft cloth or sheet of paper whenever the drum is exposed.

2. Locate a cotton swab.
3. With the printer cover open, locate the transfer charger wire and the discharge wire, which are in indentations at the bottom of the printer, beneath where the basket normally rests. These wires are thin and difficult to see.

Transfer charger **wire**

Discharge wire
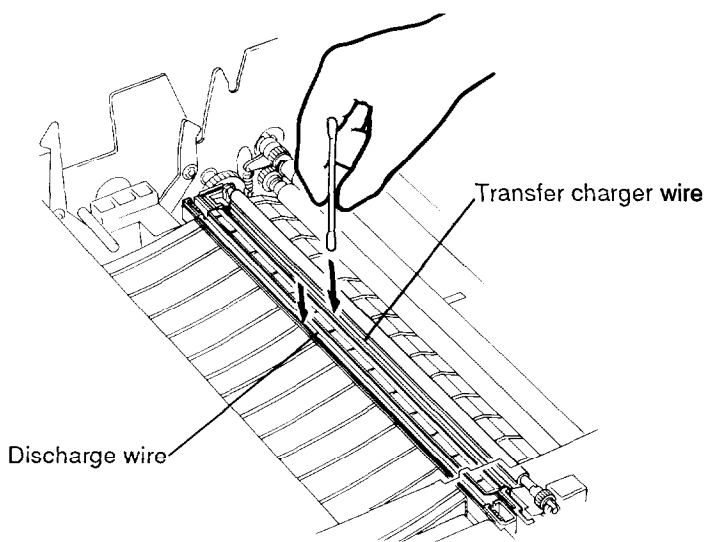
> **CAUTION:** When cleaning the wires, be careful not to press too hard. The wires are delicate and can break if you apply too much pressure. Also, never touch the wires with your fingers.

4. Gently clean each wire with the cotton swab dipped in alcohol by rubbing the swab along the length of the wire. You need to insert the cotton swab a fraction of an inch into each slot to reach the wires.

5. Proceed to the next section on cleaning the paper guide and basket.

Cleaning the paper guide and basket

1. Clean the paper guide inside the printer with a clean, dry cloth as shown in the illustration below.

> **Note:** Do not use alcohol to clean the paper guide or the basket.
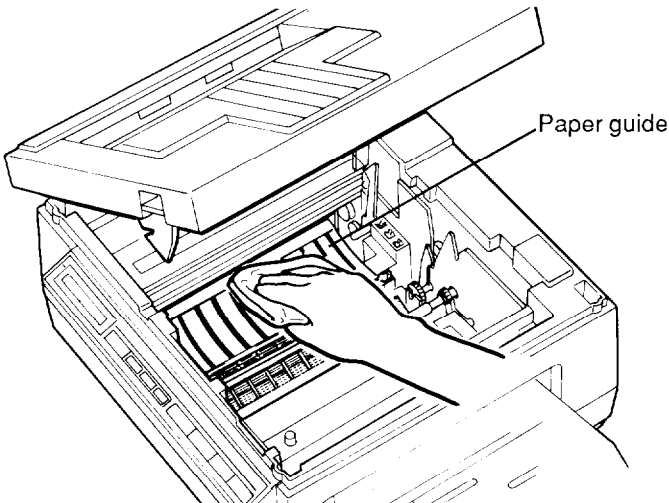
Paper guide

2. If toner has accumulated on the black portion of the paper guide near the transfer charger, remove the toner by carefully drawing the magnetic cleaner across the paper guide. (This cleaner was included in the accessory pack shipped with your printer.)
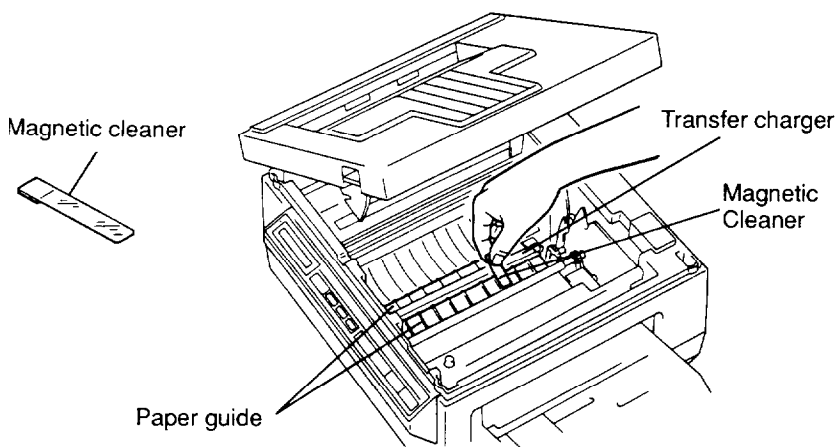
3. Now use the cloth to clean the bottom of the basket. (It is recommended that you first remove the drum unit and developer unit from the basket, setting them on a flat, clean surface.) Be sure to clean the flexible black film in the center portion of the basket.

> **CAUTIONS:**
>
> - Do not lift the developer unit by grasping the toner cartridge. The cartridge may pop off and spill toner.
>
> - Be careful not to touch the roller on the developer unit. Also, do not touch the green drum on the drum unit.

4. Replace the drum unit and developer unit in the basket.

Cleaning the laser beam lens

Note: Cleaning the lens is required at an interval of 10,000 pages (the same interval as for changing the drum). If you wish, you can clean the lens when you change the drum and skip this procedure when you change the toner cartridge. If you plan to skip this procedure, go to step 3 for printer reassembly information.

Follow these steps to clean the laser beam lens:

1. Locate the lens, **which** is the clear plastic component inside the top cover of your printer. Clean the lens with a lens cleaning cloth or other clean, soft cloth.

CAUTION: Do not use **alcohol** to clean the lens.

Laser beam lens

Raised printer cover
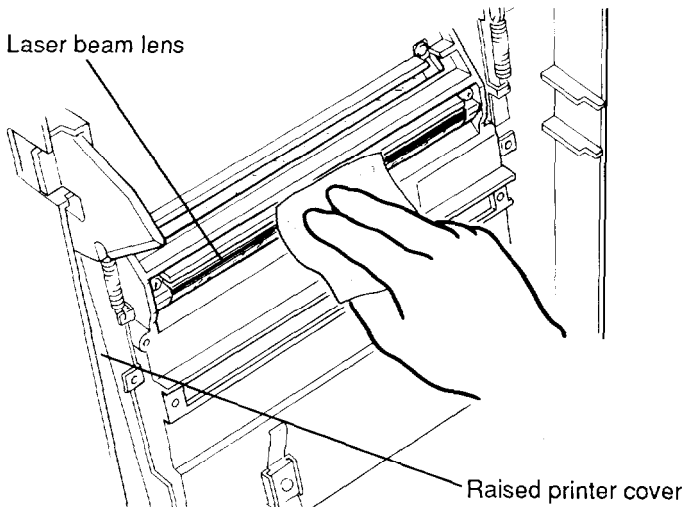
2. To ready your printer for printing, reinstall your basket. (Press down simultaneously on the drum unit's two green handles until the drum unit clicks into place.) Then close the printer cover. Plug in the power cord and turn your printer back on.

General Printer Maintenance

In addition to the maintenance called for by **the** display panel **messages,** the following simple maintenance procedures may be occasionally necessary:

- Cleaning the developer unit. You should clean **the** developer unit if vertical white lines appear on your printed page.

- Cleaning **the** main charger wire. You should clean this wire if print quality declines.

These procedures are described below.

Cleaning the developer unit

If vertical white lines appear on your printed page, you need to clean the developer unit with the developer cleaner. Follow **these** steps:

1. Locate the developer cleaner. **A** cleaner is included with **the** accessory pack that comes with your printer. **A** cleaner is also packed with replacement drum units.

2. Raise the top cover of your printer by lifting up **on the latch.**

WARNINGS:

- Opening the printer exposes the fuser, the orange area marked with a caution label. This unit is very hot, so be careful not to touch it.

- This procedure exposes the green drum unit. Because the drum is light-sensitive, it should not be exposed to room light for any longer than necessary (a few minutes at most). Thus, it is recommended that you cover the drum unit with a soft cloth or sheet of paper whenever the drum is exposed.

3. Remove the basket from the printer and place it on a flat surface.
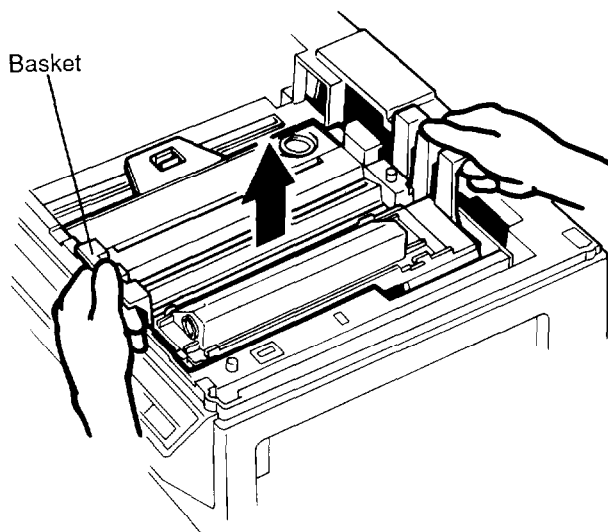
Basket

4. Protect your desktop or other flat surface by covering it with a sheet of paper. Then remove the developer unit from the basket and place it on the paper.

> Do not lift the developer unit by grasping the toner cartridge. The cartridge may pop off and spill toner.
>
> Be careful not to touch the roller on the developer unit.
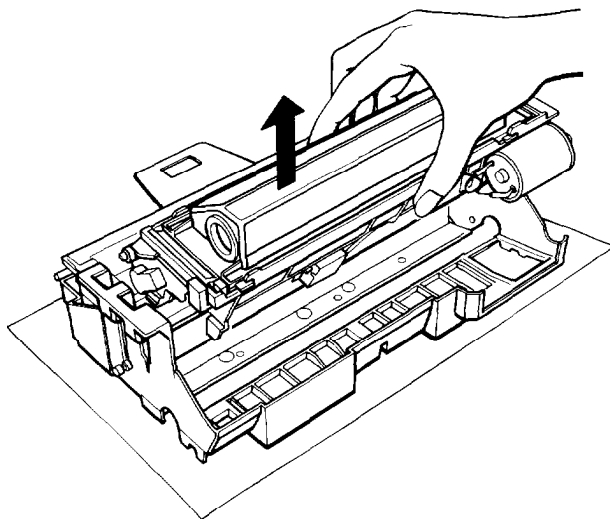
5. Insert the hooked edge of the developer cleaner about a half inch (13 mm) between the developer roller and the brass blade, as shown below. Draw the cleaner the full length of the developer unit several times, discarding excess toner. Then reinstall the developer unit in the basket.
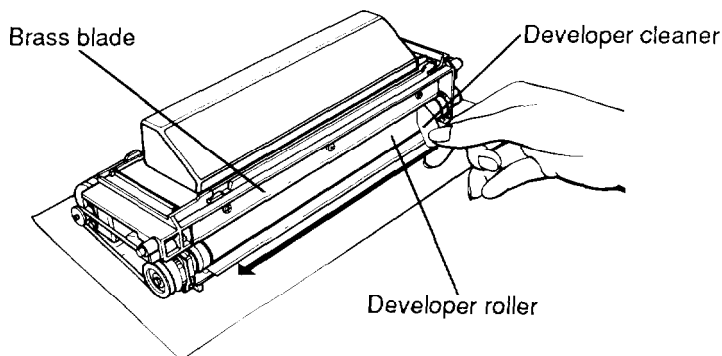
6. With the top cover of the printer open, align the arrow on the back of the basket with the arrow on the printer case. (The arrows point toward each other when the unit is properly installed.) Gently lower the basket into place.
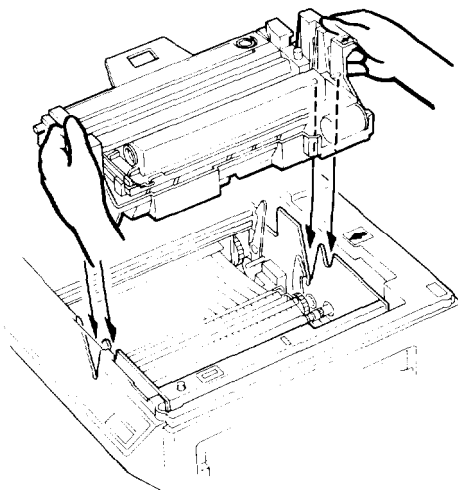
7. Press down simultaneously on the drum unit's two green handles until the drum unit clicks into place.
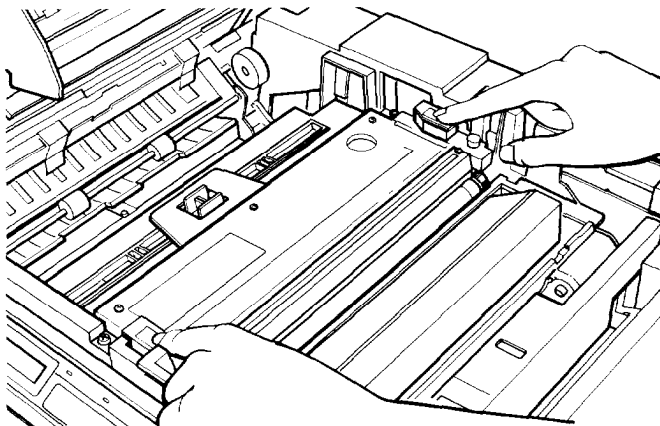
8. Close the printer cover by pressing down on the ridged area on **the** right side of the cover.

Cleaning the main charger wire

> **Note:** Locate **some** alcohol for cleaning purposes before beginning this procedure.

1 Turn off the printer and disconnect the printer cable from the wall outlet.

2. Open the printer cover and remove the basket from the printer. Place the basket on a flat surface.

WARNINGS:

Opening the printer exposes the fuser, **the** orange area marked with a caution label. This unit is very hot, so be careful **not** to touch it.

• This procedure exposes the green drum unit. Because the drum is light-sensitive, it should **not** be exposed to room light for any longer than necessary (a few minutes at most). Thus, it is recommended **that you** cover the drum unit with a soft cloth or sheet of paper whenever the drum is exposed.

3. Locate the main charger wire, which extends along **the** length of the green drum inside a slot directly over the drum. This wire is thin and difficult to spot instantly.

CAUTIONS:

• When cleaning the main charger wire, be careful not to press too hard. The wire is delicate and can break if you apply too much pressure to it.

• Avoid dripping alcohol on the drum.

4. Gently clean the main charger wire with a cotton swab dipped in alcohol. Run the swab along the length of the wire. You need to insert the **cotton** swab a fraction of an inch into the slot to reach the wire.

Main charger wire
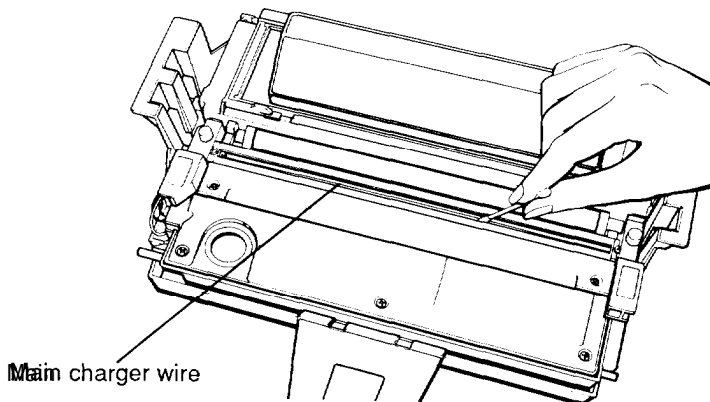
5. With the top cover of the printer open, align the arrow on the back of the basket with the arrow on the printer case. (The arrows point toward each other when **the** unit is properly installed.) Gently lower the basket into place.
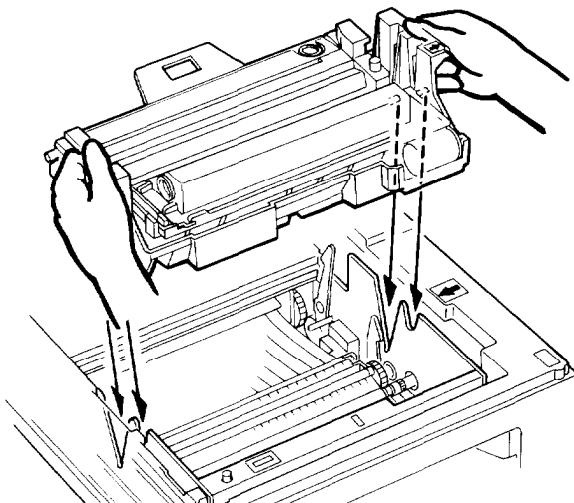
6. Press down simultaneously on the drum unit's two green handles until the drum unit clicks into place.
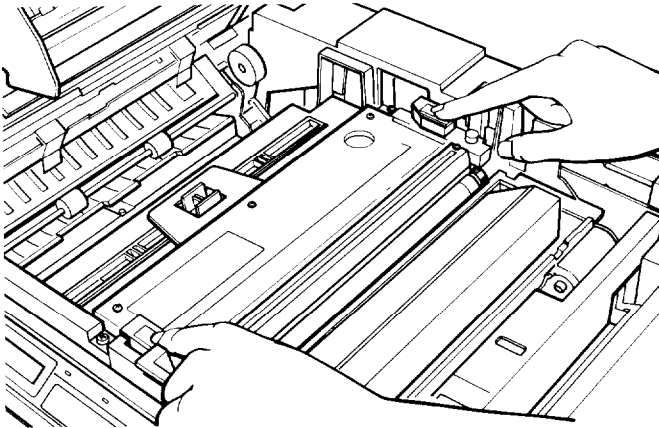
7. Close the printer cover by pressing down on the ridged area on the right side of the cover.

8. Plug in the power cord and turn your printer back on.

Service Overhaul

A service overhaul must be performed at 100,000 pages by an Epson Customer Care Center. Call 1-800-922-8911 for a referral.

Periodically check the printed sheets counter inside the printer on the right side. When the printed sheets counter reaches 100,000 pages, take the printer in to your dealer for servicing.

Printed sheets counter
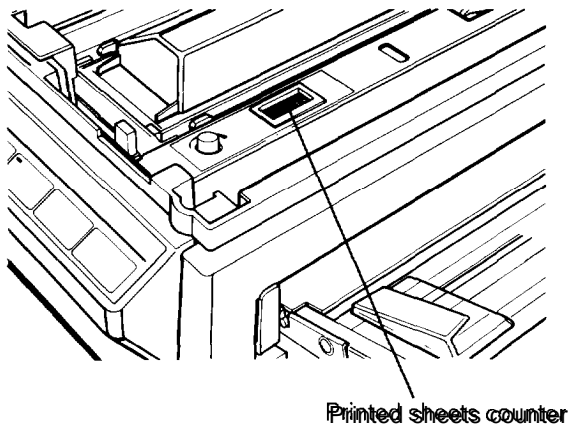
Transporting Your Printer

If you need to move the printer **a** short distance, such as from one room to another, make sure **that** you keep the printer level.

If you are shipping the printer, you need to repackage the printer and its accessories. Read and carefully follow **the** instructions below. Also make sure that the shipper takes adequate precautions to avoid damaging the printer.

> ⚠ **CAUTION: Do** not ship **the** printer with the drum unit and developer unit installed in the printer. Also, do not vacuum toner out of the developer unit.

Packing for transportation

To pack the printer you need all the original packing materials that came with **the** printer and some packing tape. You also need two large plastic bags for packing the drum unit and developer unit, to contain any toner displaced during shipping.

Prepare the printer for transportation by following **the** steps below:

1. Be sure that your printer and computer are turned off.
2. Remove the power cord and the cable connecting your printer and computer.
3. If there is a cartridge in the cartridge slot, remove it.
4. Remove **any** paper still in the paper cassette. Then remove the paper cassette and the face-up output tray from the printer. Repackage **each** tray in its original packing material.
5. Open **the** printer using the latch at the front.
6. Lift out **the** basket and place it on a flat surface.
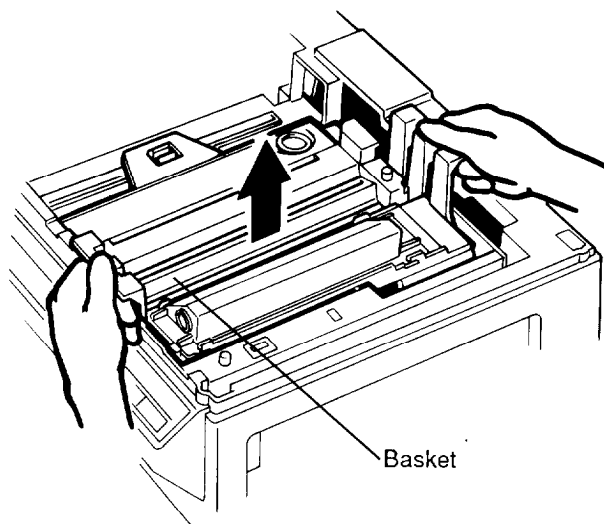
Basket

7. Remove the drum unit from the basket by lifting up on the green handles. (Avoid touching or scratching the green drum.) Place the drum in a plastic bag and seal the bag. Then wrap the drum it its original packing materials (Be sure to use the black plastic wrapper to protect the drum from light.)

8. Remove the developer unit from the basket. (Be sure not to touch the roller on the developer unit.)

> **CAUTION:** Do not lift the developer unit by grasping the toner cartridge. The cartridge may pop off and spill toner. Also, do not remove the toner cartridge from the developer unit.

9. Locate the red plastic protector, which was included with the original packing materials. Place the protector under the developer, fitting the gaps on the protector around the hooks directly beneath the developer roller.
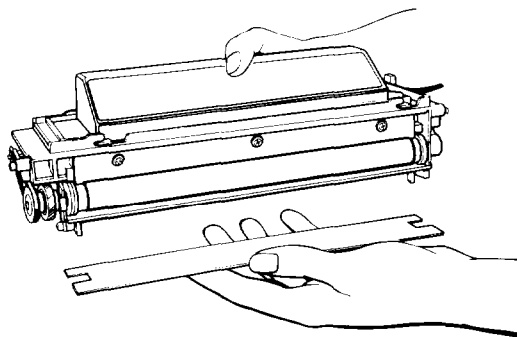
10. Place the developer unit in **a** plastic bag and seal the bag. Then wrap the unit in its original packing materials.

11. Locate the cleaning pad, which is embedded in the orange-colored fuser inside the printer. Carefully take hold of the green felt handles on the cleaning pad and lift out the pad. (Be careful not to let dirt from the pad drop into the printer.)

WARNING: If the printer has been in use recently, the fuser and the cleaning pad may be very hot. Be careful to touch only the green felt handles on the pad when you remove it. Do not touch the fuser or the pad itself.
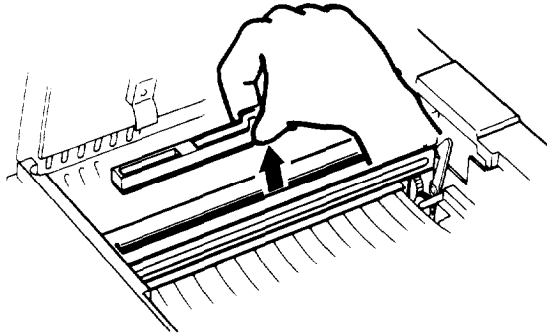
12. Pack the cleaning pad in its original packing material.

13. Pull out the drum replacement cartridge from its slot and wrap it in its original packing material.
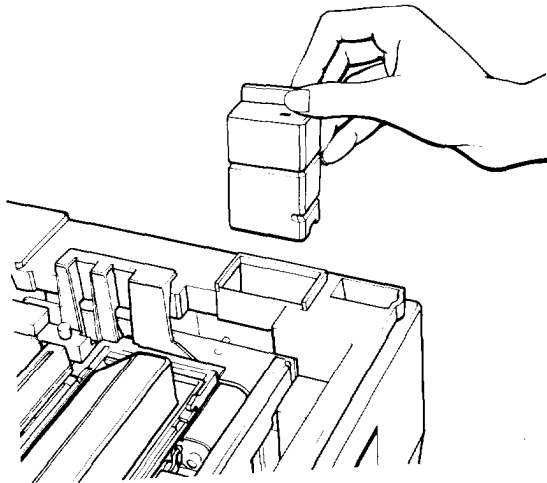
14. Put the empty basket back in the printer. Replace and tape the packing foam inside the printer as shown below to hold the basket in place.
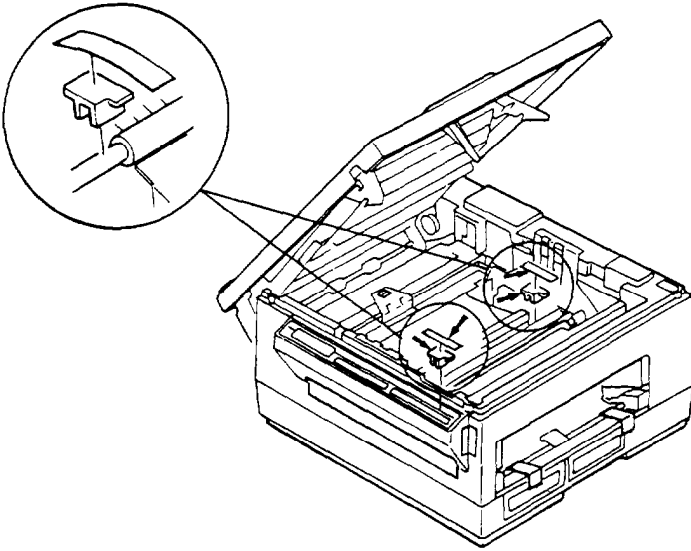
15. Close the printer cover.

16. Repack all accessories in the accessory pack.
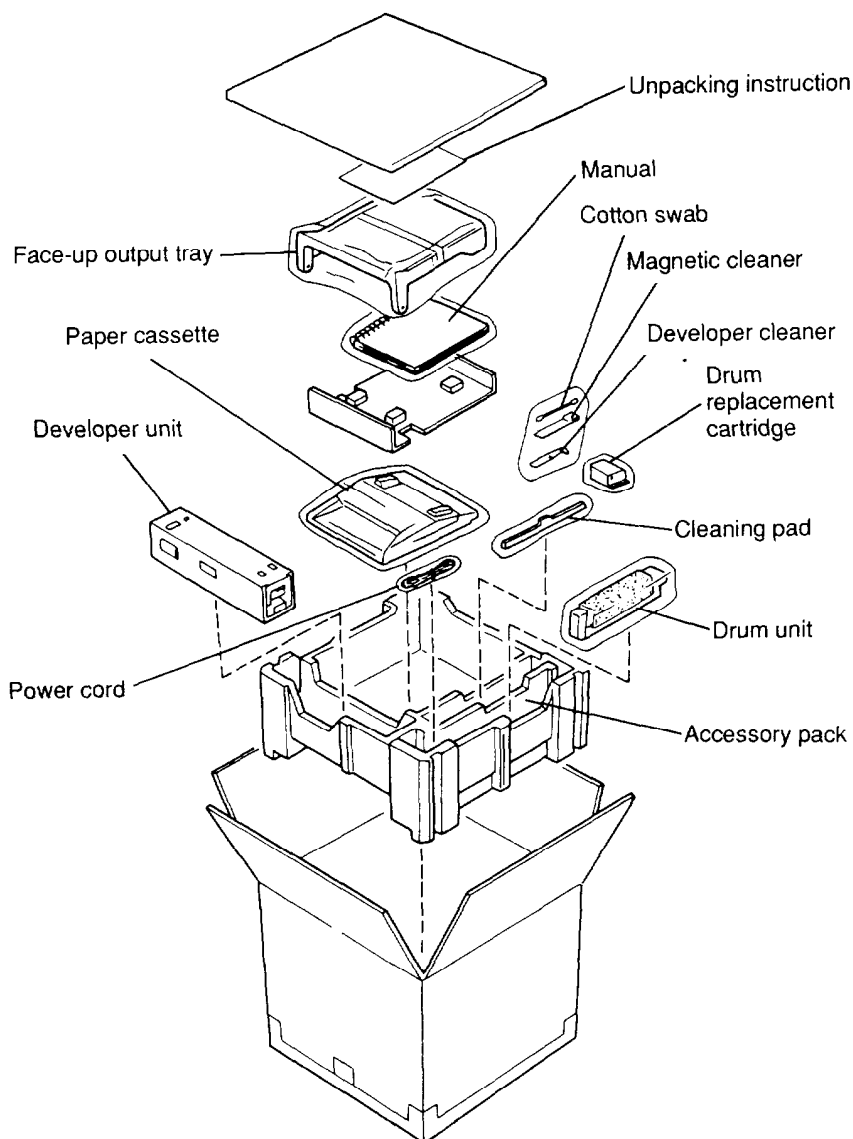
17. Pack the printer in its original packing material and put it in the outer carton.
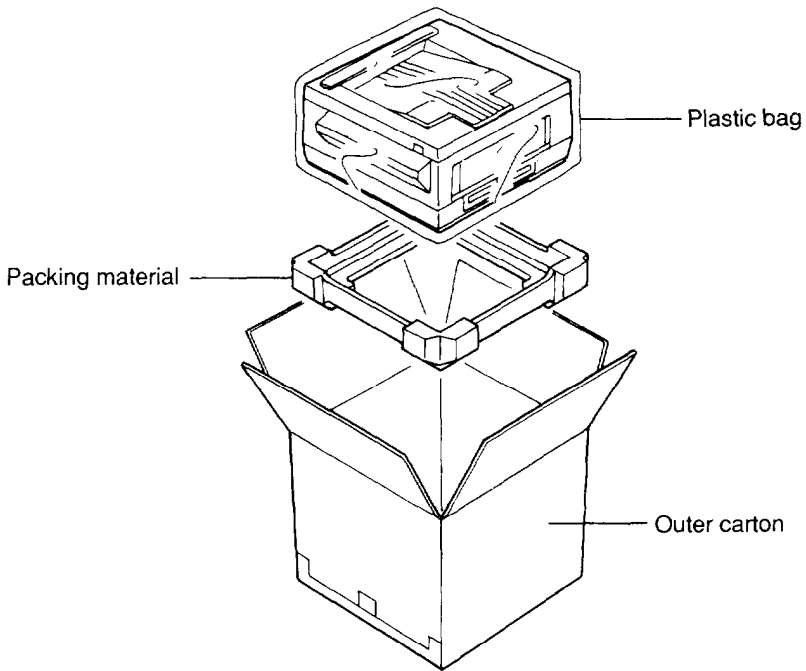
18. Place the accessory pack in the outer carton on top of the printer.

19. Seal the outer carton with packing tape.

Unpacking the Printer after Shipment

1. Unpack the printer as described in Chapter 1. When you unpack the developer unit and drum unit, wipe off any excess toner that is on these units.

⚠ **CAUTIONS:**

- Do not wipe or vacuum toner off the roller on the developer unit. Avoid touching this roller.

Developer roller
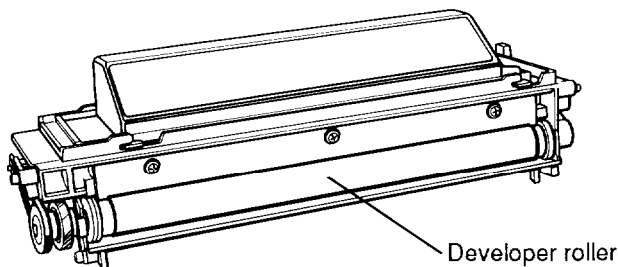
- Be careful not to scratch or mar the green drum. Also, do not touch the drum with your fingers, since oils from your skin can permanently mar its surface and affect print quality.

2. Before reassembling the printer, perform the routine cleaning procedures described beginning on page 6-19. (Skip the step on readying your printer for printing.)

3. Assemble the printer as described in Chapter 1.

4. Follow the instructions on setting the paper feed mechanism in Chapter 1, page 1-23. This procedure causes the paper feed mechanism, which can become misaligned during shipping, to resume its original position.

Chapter 7
Troubleshooting

Error Messages

This chapter discusses problems you may encounter with your printer and their likely solutions.

The first section of **this** chapter describes error messages and provides possible solutions. The remaining sections are designed to help you solve problems that may occur while you are using the printer.

When an error occurs, the error **light** comes on and a message appears in **the** display on the control panel. The message tells you **what may** be wrong and, in some cases, indicates the actions you should take to correct **the** problem.

This section **contains** a list of error **messages** you may encounter while printing. Each error message is followed by the steps you need to take to correct the problem.

Certain problems require service by an Epson Customer Care Center. Call the Epson Consumer Information Center at 1-800-922-8911 for a referral to a Customer Care Center.

Notes:

- When a problem has been corrected, you may **need to** press **the ON LINE** button to resume printing.

- Certain problems require that you press **the CONTINUE/RESET** button to continue printing. However, when the AUTO **CON T** SelecType option is set to ON, the printer automatically clears the error and resumes printing for **the** following error messages:

PS CHANGE	**ERROR 21**	**ERROR 40**
ERROR 20	**ERROR 22**	

  When the **AUTO CONT** SelecType option is set to **ON,** your printer resumes printing even though the problem may not have been fixed. This may cause a problem with your printed o u t p u t .

CHANGE DRUM

The drum unit may not be installed properly. Open the printer and make sure **the** drum unit is seated properly in the basket. (Press down simultaneously **on** the drum unit's two green handles to make sure the unit **has** clicked into place.)

Also, the drum replacement cartridge may **not** be installed. Be sure to install a new drum replacement cartridge each time you replace the drum unit.

If **the** message remains, the drum unit and the drum replacement cartridge must be replaced. See **the** section on replacing the drum unit in Chapter 6.

COVER OPEN

The printer cover is open. Close the cover and press **the ON LINE** button to set **the** printer **on** line and begin normal printing.

ERROR 20

Not enough memory is available. Press the **CONTINUE/RESET** button to continue printing. Your page may be printed as two or more separate pages. This error can also be cleared by turning the printer off and back on again. It may be necessary to simplify your print job by downloading a smaller font, deleting **some** macros, or using a lower resolution. You may also **wish** to purchase **the** optional 2MB memory board available for this printer.

ERROR 21

The page is too complex to print. Press the **CONTINUE/RESET** button to eject the page and clear **the** error. This error can also be cleared by turning the printer off and back on again. Before you continue printing, simplify the page you are trying to print.

ERROR 22

The buffer has overflowed due to a communication protocol error. Make **sure that** your SelecType settings match **the** communication protocol settings of your computer. If **the** problem persists, call the toll-free number for a Customer Care Center referral.

ERROR 40

A parity or baud rate error has occurred. Press the **CONTINUE/RESET** button to clear the error. Make sure your SelecType settings **match** your computer configuration. If **the** problem persists, call **the** toll-free number for a Customer Care Center referral.

FONT CART ERROR

The font cartridge selected using the **FONT SOURCE** SelecType option is not installed properly. Turn the power off. Then remove the cartridge and reinsert it. Turn the power back on and resend the print job. If the problem persists, make sure that the correct **FONT SOURCE** option **has** been selected in SelecType. See the section on SelecType in Chapter 3 for details.

INSERTION ERROR

There is a paper feeding problem. See the section on paper jams in this chapter for details.

PAPER EMPTY

There is no paper in the paper cassette, or the paper cassette is not installed properly. Load more paper into the paper cassette or properly install the cassette. See Chapter 4 for details.

PAPER JAM

Paper is jammed inside the printer. See the section on paper jams in this chapter.

Note: If **the** printer was recently transported, the paper feed mechanism may need to be aligned. See **the** section on setting the paper feed mechanism in Chapter 1 for details.

PAPER SIZE ERROR

If you press **the ON LINE** button to override the **PS CHANGE message, this message** appears as your print job ejects to remind you to change the paper and SelecType **PAPER SIZE** option. See **PS CHANGE** below.

PS CHANGE

Your application software has requested a paper size that does not match your SelecType **setting** or paper. Press the **CONTINUE/RESET** button to clear the error; the printer is set off line.

Note: If you are using a non-standard paper size (one that is not listed on the **PAPER** SIZE menu in the SelecType), manual feeding may be **necessary.** See Chapter 4 for details.

After clearing the error, you have two options:

1. Change the paper in the cassette; then enter SelecType and change the paper **size to match.** Press the **ON LINE** button after exiting SelecType to continue printing.

2. Alternatively, press the **ON LINE** button to continue printing on the current paper. (The message **PAPER SIZE ERROR** appears in the display.) See **PAPER SIZE ERROR** above.

TONER EMPTY

The developer unit may not be installed properly. Open **the** printer
and make sure the developer unit is seated properly in the basket.

If **the** message remains, the toner is low and you must replace **the**
toner cartridge. See the section on replacing the toner cartridge in
Chapter 6.

CPU ERROR	**ERROR 30**
ERROR 10	**ERROR 31**
ERROR 11	**ERROR 32**
ERROR 12	**ERROR 33**

If one of these error messages appears, follow **the** steps below.

1. Press the **CONTINUE/RESET** button.

2. If the error does not clear, turn the printer off for at least five
seconds. Then turn it back on.

3. If **the** problem remains, service is required. Call 1-800-922-891 1
for the location of the nearest Epson Customer Care Center.

Paper Jam Problems

This section gives you detailed information on correcting paper jams, which are indicated by a **PAPER JAM** or an **INSERTION ERROR message.**

> ⚠ **CAUTION:** If the paper tears while you are removing it, make sure you remove any pieces still remaining in the printer.

Insertion error

If the **INSERTION ERROR message** appears, the jam is in the paper feed area. To remove the jammed paper, follow the steps below.

Paper feed area
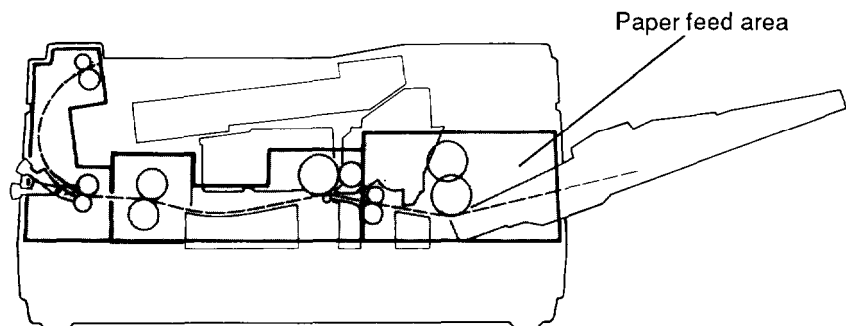
1. Remove the paper cassette.

2. Open the cover. Remove the basket from the printer.
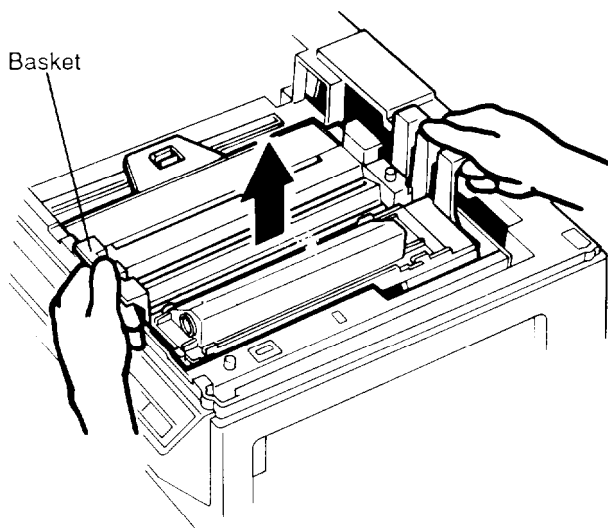
3. Hold down the green release lever, located inside the front of the printer, to release the paper.
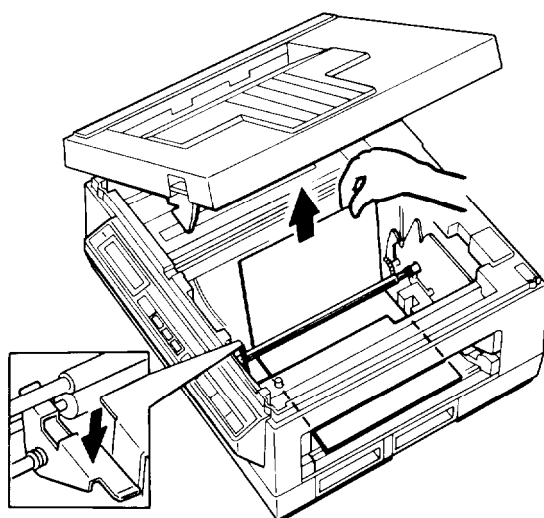
4. While holding down the release lever, remove the jammed paper. Then let go of the release lever.

5. Reinstall the basket by aligning the arrow on the back of **the** basket with the arrow on **the** printer case and lowering the basket into place.

6. Press down simultaneously on the drum unit's two green handles until the unit clicks into place.

7. Close the cover.

8. Reinsert the paper cassette into the printer so that the arrow on **the** side of the cassette points into the printer. Push the cassette in until it **can** go no further; then lower the end of the cassette **(the** end you load paper into) until **the** cassette drops into place.

> CAUTION: It is particularly important to lower the cassette into place. If the cassette is not installed properly, the message **PAPER EMPTY** appears in the display.

9. **Press the ON LINE** button to resume printing.

Paper jam error

If the **PAPER JAM message** appears, the jam is either in the paper eject area or the paper transport area as shown below.
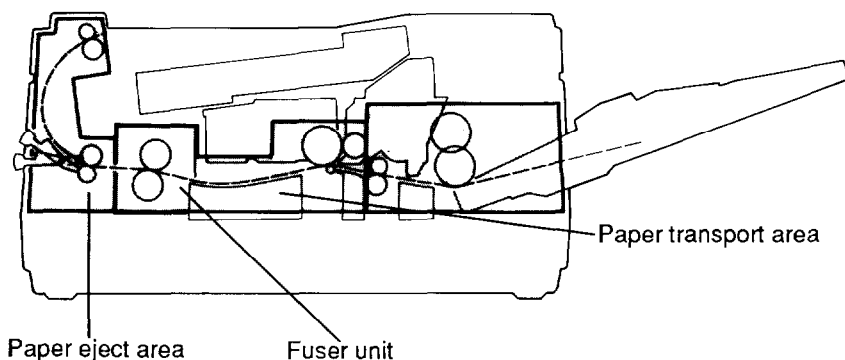
Paper transport area

Paper eject area   Fuser unit

Note: If the printer was recently transported, the paper feed
mechanism may need to be aligned to prevent further jamming.
See the section on setting the paper feed mechanism in Chapter 1
for details.

If the paper is jammed in the paper eject area, you can see it sticking
out of either the face-up or face-down output tray depending upon
the paper path selected. Simply remove it by pulling it out of the
printer.
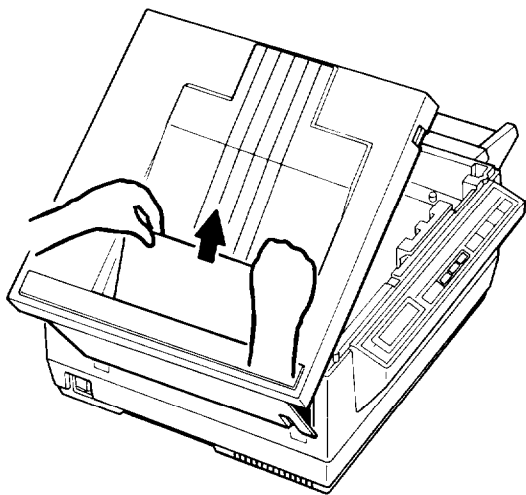
If the jam is in the paper transport area, follow the steps listed below.

CAUTION: Because the toner on the paper inside the
printer may not have been fixed on the page, avoid
contact with it; it may come off on your hands while you
are removing the paper. When you resume normal
printing, the first page through the printer may be soiled
with excess toner.

1. Open the printer.

2. Lift out the basket as shown previously in **this** section.

3. Remove **the** jammed paper.

> **WARNING:** If it is necessary to pull it from beneath the fuser unit, be careful not to touch **the** fuser unit, which becomes hot during printer operation.
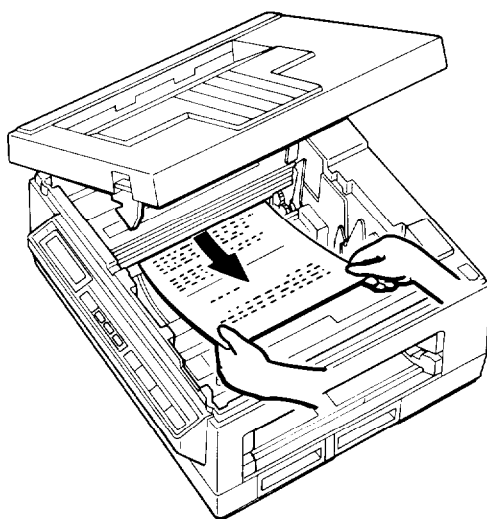
4. Reinstall the basket by aligning the arrow on **the** back of **the** basket with the arrow on the printer case and lowering **the** basket into place.

5. Press down simultaneously on the drum unit's two green handles until the unit clicks into place.

6. **Close the** cover.

7. Press **the ON LINE** button to set the printer on line and resume printing.

Troubleshooting

This section discusses problems you may encounter and their likely solutions. (Paper jam problems are discussed earlier in this chapter.) Locate the problem in the list below and work through the suggested solutions. If the exact problem is not listed, look for one of a similar type. Many of the problems may not be as serious as you first think and can be corrected easily.

If the suggestions below do not solve the problem, call the Epson Consumer Information Center at 1-800-922-891 1 for the location of the nearest Epson Customer Care Center.

Power Supply

Problem   Solution

**Power is not being
supplied to the
printer.**

*After turning an the
printer, the display
remains blank.*

The power cord may be disconnected or
may not be completely plugged in. Turn
off the printer and check the power cord
connections at the printer and at the
electrical outlet. Then turn the printer
back on.

Check to see if the power cord is
damaged. If it is, replace it with a new
power cord.

The problem may be with the electrical
outlet itself. If the outlet is controlled by
an outside source such as **a** wall switch,
make sure it is on.

If the printer still does not operate, the
outlet may be faulty. Plug another
electrical device into the outlet to check
whether the outlet is operating properly.

Printing Problems

Problem	Solution

The printer does not print or stops printing.

The ON LINE message appears but nothing is printed.

The interface cable may not be plugged in securely. Check both ends of the cable between the printer and the computer. If you are using a parallel interface, secure the connector using the wire retaining clips.

You may not be using the correct interface cable. Make sure that your interface cable meets the specifications for the printer and computer.

You may not have selected the correct interface settings with SelecType. Select the appropriate interface (serial or parallel). If you are using a serial interface, also set the baud rate, protocol, data bit, and related settings. See Chapter 3 for information on using SelecType. Also check your computer manual for interface requirements.

You may not have set the DIP switches correctly. DIP switches must be set for either the RS-232C or the RS-422A serial interface. (Not required for a parallel interface.) See Chapter 2 for details.

Problem	**Solution**
The ON LINE *message* appears *but nothing is printed (continued).*	Your software may not be installed properly for your printer. Make sure the currently selected printer mode matches your program's printer driver.
The test prints do not print.	The printer must be set off line when running a test print.
	You may have installed an incompatible font cartridge. Try the test print again without the cartridge installed, or with a different cartridge.
	If the problem continues, service by an authorized Epson Customer Care Center is needed.
The printer stops printing and the display reads CHANGE DRUM, TONER EMPTY, **or** PAPER EMPTY.	Replace the component specified. See Chapter 4 for paper loading instructions. See Chapter 6 for toner and drum replacement instructions.

Problem	**Solution**

The printout is not what you expected.

The font selected by your *software cannot be printed.*

Make sure that all of the attributes of the requested font match the attributes of an available font. (These attributes include orientation, symbol set, spacing, pitch, point size, style, weight, and typeface.) Otherwise, a font you don't expect may be selected. For example, simply requesting a typeface or point size may not be sufficient to select the desired font.

Your software may be overriding the font chosen with SelecType. Make sure your software settings match the settings in SelecType. Also, the font selected by your software may not be available. Be sure you have installed the correct font cartridge or have downloaded the correct soft font.

Completely blank pages are printed.

Run a status print test (as described in Chapter 2) to check that the interface configuration for your computer matches the SelecType settings. Change the SelecType settings if necessary.

If blank pages continue to print, check to be sure the drum unit is installed properly. If the problem persists, replace the drum and drum replacement cartridge as described in Chapter 6.

Problem	**Solution**
Characters belonging to a different symbol set are being printed.	The expected symbol set may not be available in the printer. Be sure you have installed the correct font cartridge or have downloaded the correct soft font.
	The correct symbol set may not be selected. Specify the desired symbol set with your software or with SelecType. See Appendix A for information on symbol sets.
Some **or** *all* **of** *the output is garbled* **or** *printed as asterisks.*	The interface cable may not be plugged in completely. Make sure that both ends of the cable are plugged in securely.
	The interface may not be configured correctly. If you are using a serial interface, make sure that your serial interface settings are set correctly in SelecType and that they match the settings for your computer. See Chapter 3 for details.
	Try running a self test print as described in Chapter 2. If this fails to print correctly, call 1-800-922-8911 for a referral to an Epson Customer Care Center.
Graphic images do not print.	You may not have the correct printer driver installed. If you try to print with a software package set for another printer, nothing will be printed. Make sure that the driver matches the currently selected operating mode.

Problem	**Solution**
The position of the printout is not what you expected.	
The printed page length differs from the actual length of the paper.	The SelecType FORM setting may not be correct or your software may be overriding it. Enter the HP emulation submenu and check the setting. The default setting is 60 lines.
	Check the page length and top margin settings for your application program to ensure that they are set correctly.

Paper Handling

Problem	Solution
Paper does not feed **properly.**	
Paper does not feed at *all.*	Paper may be loaded incorrectly. Check to see that the paper is loaded correctly. See Chapter 4.
	If the manual light is on, the printer is set for manual printing. Set the printer off line, then press the MANUAL button to return to automatic print mode. See Chapter 4 for details.
Paper becomes crooked us it feeds into the printer.	The paper guides may not be adjusted correctly. Set the position of the guides so that the paper can slide in and out freely. If the paper guides are too tight, they can cause the paper to bind; if they are too loose, the paper may feed crookedly into the printer. See Chapter 4 for details.
	If you have just transported your printer, the paper feed mechanism may be misaligned. See the section on setting the paper feed mechanism in Chapter 1.

Problem	Solution

Paper does not feed properly (continued).

More than one page at a time feeds into the printer.

You may not have fanned the paper sufficiently to ensure smooth paper feeding. If the paper has jammed, remove the jammed sheet or sheets as described in the section on paper jams in this chapter. Remove the paper from the paper cassette, fan it, and reinsert it in the cassette. Then try printing again.

Also, remember that poor quality paper can cause paper feeding errors of this type. Make sure your paper supply is not too thin or too rough.

If you are using manual feed, be sure the paper cassette is about half-full to prevent feeding from the paper cassette.

See Chapter 4 for information on the types of paper that can be fed automatically and the types that require manual feeding.

The paper *feeds but then jams at the output area.*

There may be too much paper in the output tray. Never let more than 20 sheets of paper accumulate in the faceup output tray, or more than 150 sheets accumulate in the facedown output tray on top of the printer.

Problem	**Solution**
The display reads PS CHANGE.	You may be trying to use a non-standard paper size (one that is not listed on the **PAPER** SIZE menu in SelecType). You may be able to feed this paper using **the** manual paper feed option described in Chapter 4. See the Error Messages section for more information on this message.

Decline in Print Quality

Problem	Solution
The print quality is not what you expected.	
The printed page is dirty, vertical bands **or** *streaks appear on the page,* **or** *the print quality is uneven.*	Printer components may not be properly installed. Make sure the developer unit and drum unit are properly installed.

Printer components may be dirty. To clean components, follow the steps in the Routine Printer Cleaning section in Chapter 6. Also clean the main charger wire as described in the General Printer Maintenance section in Chapter 6. |
| *Vertical white bands or lines appear on printed pages.* | Printer components may be dirty. To clean components, follow the steps in the Routine Printer Cleaning section in Chapter 6.

The developer unit may be dirty. Clean the developer unit as described in the General Printer Maintenance section in Chapter 6. |
| *Ghost images appear on printed pages.* | The drum and drum replacement cartridge need to be replaced. Replace the drum and drum replacement cartridge as described in Chapter 6. |

Problem	**Solution**
*Periodic black **or** white spots appear on the printout.*	The drum may be dirty, stained, or damaged. Remove the basket and carefully remove the drum unit. Then clean it with a soft, dry cloth that is free of lint. (Do not touch the surface of the drum with your fingers. The oils from your skin can permanently damage the drum.) Reinstall the drum unit and replace the basket. Check the print quality. If the problem persists, replace the drum and drum replacement cartridge as described in Chapter 6.
Individual characters appear uneven or broken.	You may not be using the correct type of paper for your printer. If the surface of your paper is too rough, printed characters appear distorted or broken. Smooth, high-quality copier paper or paper specifically designed for laser printers is recommended for best results.
*The printed image is light **or** faint.*	Your paper may be moist or damp. Printing is sensitive to moisture absorbed by the paper. The higher the moisture content in the paper, the lighter the printed output. Do not store your paper in a humid or damp environment.
*The non-printed side **of** the page is dirty.*	The printer needs to be cleaned. Follow the steps in the Routine Printer Cleaning section in Chapter 6.

Problem	Solution

The paper curls.

Printed pages are curled.

You may need to turn over the stack of paper in your paper cassette and try printing again. Most paper has a natural "curl" that may be emphasized when **the** paper is run through a laser printer. One side of the paper tends to curl more than the other side.

Another way to minimize paper curl is to use the face-up output tray. This tray provides a straight-through paper path, reducing excessive curling. To select face-up printing, move the paper path selector on **the** left side of the printer to the down position.

If the **SPECIAL** button is set for **the** high fusing temperature **(the** # symbol is displayed), press the button to select the lower temperature setting (the # symbol is no longer displayed). (However, the lower temperature is not recommended for envelopes or heavy paper.)

If **these** suggestions do not help, it is recommended that you use a different type of paper.

Appendix A
Character Samples and Symbol Sets

HP Mode Resident Fonts

The HP mode fonts resident in the laser printer are listed below. The cartridge slots on your printer lets you access a wide variety of other fonts available on font cartridges.

Font Name	Point Size	Orientation
Courier	12 point	portrait
Courier	12 point	landscape
Courier bold	12 point	portrait
Courier bold	12 point	landscape
Line printer	8.5 point	portrait
Line printer	8.5 point	landscape

Character samples

The font samples below show only portrait orientation since the character itself is the same in portrait or landscape orientation.

Courier   12 point   portrait

Courier bold   12 point   portrait

Line printer   8.5 point   portrait

Symbol Set Tables

This section includes a character table for each symbol set in the HP emulation mode that can be selected with SelecType and a substitution chart for the IS0 symbol sets (also available through SelecType).

The symbol set tables in this section show you the available characters and hexadecimal codes.

To locate the hexadecimal value for a character, find the character on the table. Move to the top of the column for the first digit of the hex character. Then move to the left of the row for the second digit. For example, the character Z has a hexadecimal value of 5A.

To locate the decimal value for a character, determine the hexadecimal value for the character, then use the chart at the end of this appendix to convert the hexadecimal value.

Note: The ID number under each symbol set name provides the unique portion of the escape sequence needed to select that particular symbol set. (This ID number also appears on the font test print which is described in Chapter 2.) For more information on escape sequences, see Chapter 5.

Roman-8
Symbol Set ID # 8U

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	@	P	`	p					─	â	Å	Á	Þ
1			!	1	A	Q	a	q			À	Ý	ê	î	Ã	þ
2			"	2	B	R	b	r			Â	ý	ô	Ø	ã	·
3			#	3	C	S	c	s			È	°	û	Æ	Ð	μ
4			$	4	D	T	d	t			Ê	Ç	á	å	ð	¶
5			%	5	E	U	e	u			Ë	ç	é	í	Í	¾
6			&	6	F	V	f	v			Î	Ñ	ó	ø	Ì	–
7			'	7	G	W	g	w			Ï	ñ	ú	æ	Ó	¼
8			(	8	H	X	h	x			´	¡	à	Ä	Ò	½
9			)	9	I	Y	i	y			`	¿	è	ì	Õ	ª
A			*	:	J	Z	j	z			^	¤	ò	Ö	õ	º
B			+	;	K	[	k	{			¨	£	ù	Ü	Š	«
C			,	<	L	\	l	|			~	¥	ä	É	š	■
D			-	=	M	]	m	}			Ù	§	ë	ï	Ú	»
E			.	>	N	^	n	~			Û	ƒ	ö	ß	Ÿ	±
F			/	?	O	_	o	※			£	¢	ü	Ô	ÿ	

ECMA-94 Latin 1
Symbol Set ID # ON

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p				°	À	Ð	à	ð
1			!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
2			"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3			#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4			$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5			%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6			&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
7			'	7	G	W	g	w			§	·	Ç	×	ç	÷
8			(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9			)	9	I	Y	i	y			©	¹	É	Ù	é	ù
A			*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B			+	;	K	[	k	{			«	»	Ë	Û	ë	û
C			,	<	L	\	l	|			¬	¼	Ì	Ü	ì	ü
D			-	=	M	]	m	}			-	½	Í	Ý	í	ý
E			.	>	N	^	n	~			®	¾	Î	Þ	î	þ
F			/	?	O	_	o	▒			¯	¿	Ï	ß	ï	ÿ

IBM US (PC-8)
Symbol Set ID # 10U

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		▶		0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	▓	┴	╤	β	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▨	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	û	ª	╢	╞	╓	μ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	•
A	◉	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	η
D	♪	↔	-	=	M	]	m	}	ì	¥	¡	╜	=	▌	φ	²
E	♫	▲	.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	ε	•
F	☼	▼	/	?	O	_	o	▓	Å	ƒ	»	┐	╧	■	∩	

IBM Denmark/Norway PC-8 D/N)
Symbol Set ID # 11U

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		►		0	@	P	`	p	Ç	É	á	▒	L	⊥	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▓	┴	┰	β	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	û	õ	╢	╞	╥	μ	÷
7	•	↕	'	7	G	W	g	w	ç	ù	Õ	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	ã	╣	╔	┘	Θ	•
A	◙	→	*	:	J	Z	j	z	è	Ü	Ã	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	ø	ℓ	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	î	£	ń	╝	╠	▄	∞	η
D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	╜	=	▌	φ	²
E	♫	▲	.	>	N	^	n	~	Ä	Ŀ	³	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o	▓	Å	ŀ	¤	┐	⊥	■	∩	

ISO substitution characters

The decimal numbers in the top row show the characters that differ from Roman-8 for each of the ISO symbol sets listed in the first column.

ISO	Name	ID	35	36	64	91	92	93	94	96	123	124	125	126
6	ASCII	OU	#	$	@	[	\	]	^	`	{	|	}	~
2	IRV	2U	#	¤	@	[	\	]	^	`	{	|	}	‾
4	UK	1E	£	$	@	[	\	]	^	`	{	|	}	‾
25	French	OF	£	$	à	°	ç	§	^	`	é	ù	è	¨
69	French	1F	£	$	à	°	ç	§	^	µ	é	ù	è	¨
	German	OG	£	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
21	German	1G	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
15	Italian	01	£	$	§	°	ç	é	^	ù	à	ò	è	ì
14	JIS ASCII	OK	#	$	@	[	¥	]	^	`	{	|	}	‾
57	Chinese	2K	#	¥	@	[	\	]	^	`	{	|	}	‾
10	Swedish	3S	#	¤	@	Ä	Ö	Å	^	`	ä	ö	å	‾
11	Swedish	OS	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
	Spanish	1S	#	$	@	¡	Ñ	¿	°	`	{	ñ	}	~
17	Spanish	2S	£	$	§	¡	Ñ	¿	^	`	°	ñ	ç	~
85	Spanish	6S	#	$	·	¡	Ñ	Ç	¿	`	´	ñ	ç	¨
16	Port	4S	#	$	§	Ã	Ç	Õ	^	`	ã	ç	õ	°
84	Port	5S	#	$	´	Ã	Ç	Õ	^	`	ã	ç	õ	~
60	Norw 1	0 D	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	‾
61	Norw 2	1D	§	$	@	Æ	Ø	Å	^	`	æ	ø	å	|

Converting Hexadecimal Values to Decimal Values

If you prefer to use decimal values instead of hexadecimal values, you can convert the hexadecimal value with the chart below. Just read down in the column for the first digit of the hex value and across in the row for the second digit. Where the two intersect is the decimal value that corresponds to your hex value. For example, to find the decimal equivalent of hex 5A, look where column 5 intersects with row A. There you will find decimal 90.

Hex-to-Decimal Conversion Chart

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Appendix B
Technical Specifications

Printer Specifications

Printing

Printing method:	Laser beam scanning and dry electrophotographic process
	Drum type: OPC
	Exposure: Laser beam scanning
	Fusing: Heat fixing
Resolution:	300 x 300 dpi
Print speed:	6 pages per minute (letter or A4)
First print:	Less than 21 seconds (letter/A4 face up)
Warm-up time:	Approximately 65 seconds at 73°F (23°C) with 512K RAM
Internal fonts:	6 font styles:
	Courier 12 pt. portrait **10** cpi Courier 12 pt. landscape 10 cpi Courier Bold 12 pt. portrait 10 cpi Courier Bold 12 pt. Landscape 10 cpi Line Printer 8.5 pt. portrait 16.66 cpi Line Printer 8.5 pt. landscape 16.66 cpi
Cartridges:	2 cartridge slots available for font cartridges

Paper and paper delivery

Paper specifications: Epson does not recommend or guarantee the use of any particular brand of paper. Because paper characteristics are subject to change by individual manufacturers, it is the user's responsibility to ensure the quality of paper used with the printer.

Paper and any ink or glue on it must be able to withstand a temperature of 392°F (200°C) and a pressure of 800 gf/cm^2. It must also not be sensitive to silicon oil.

Paper weight: Cassette feed (plain paper):
16 to 27 lb. (60 to 101 g/m^2)

Manual feed (plain paper):
14 to 34 lb. (52 to 128 g/m^2)

Paper size: Standard sizes:

Type	Size
Letter	8.5 x 11 inches
Legal	8.5 x 14 inches
A4	210 x 297 mm (8.3 x 11.7 inches)
Executive	7.25 x 10.5 inches

Range of paper width and length:

Width	Length
Max 8.5 inches (216 mm)	14 inches (356 mm)
Min 3.2 inches (82 mm)	5 inches (127 mm)

Paper feed alignment and direction: Center alignment for all sizes; lengthwise direction for standard sizes

Paper feed: Cassette or manual feed (paper cassette capacity: up to 150 sheets of 20 lb. paper)
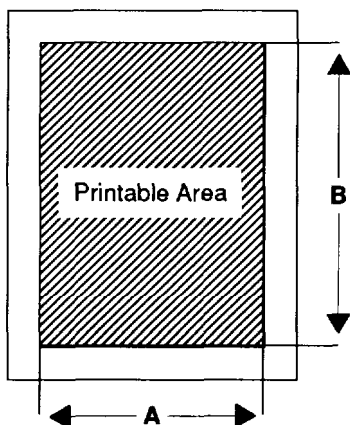
Paper eject: Face-up or face-down selection

Paper eject capacity:

Face-down: 150 sheets (20 lb. paper)
Face-up: 20 sheets (20 lb. paper)

Printable area:

Paper	A	B
Letter (8.5" x 11")	8.0"	10.6"
Legal (8.5" x 14")	8.0"	13.6"
A4 (210 x 297 mm)	202 mm	287 mm
Executive (7.25" x 10.5")	6.75"	10.1"

Mechanical

Dimensions and weight:	Height:	8.3 inches (210 mm)
	Width:	16.1 inches (410 mm) excluding output and input trays
	Depth:	15.4 inches (390 mm)
	Weight:	Approx. 36 lb. (16 kg) including paper cassette, drum unit, and toner cartridge

Recommended duty cycle: 3,000 sheets per month

MPBF (Mean Prints Between Failures):   30,000 sheets

MTBF (Mean Time Between Failures):   3,000 hours

Durability: 5 years or 300,000 sheets (whichever comes first)

Electrical

Voltage: 120 V AC ± 10%, 60 Hz ± 3 Hz

Power consumption: 720 VA

Controller hardware

RAM:	Total Memory:	512K bytes

2MB Memory
Board: The optional 2MB memory board provides enough memory for full-page, 300 dpi graphics plus additional memory for downloading and other purposes. This board may be upgraded to 4MB to give you an additional 2MB of memory. (Call 1-800-873-7766 for information.)

Environment

Operation:	Temperature: 50 to 95°F (10 to 35°C)
	Humidity: 20 to 80% RH without condensation
Storage:	Temperature: 32 to 95°F (0 to 35°C)
	Humidity: 20 to 80% RH without condensation

> **CAUTION:** The life of consumables may be significantly reduced if they are stored at temperatures outside the range stated above.

Internal mode

HP LaserJet series II emulation

Interface Specifications

The laser printer has the following resident interfaces:

• Parallel

• RS-232C/RS-422A serial.

Parallel interface

Your printer is equipped with an 8-bit parallel interface.

Pin assignments for the parallel interface

The parallel interface connector pin assignments and a description of the interface signals are shown in the table below.

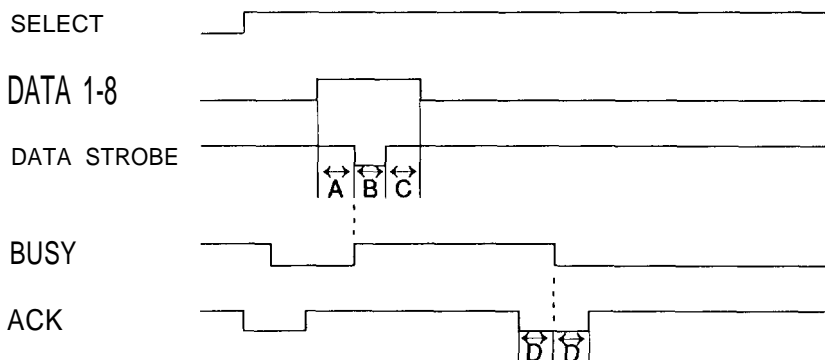| Signal Pin	Return Pin	Signal	Direction	Description
1	19	DATA STROBE	IN	Signal to read data in.
2	20	DATA 1	IN	These signals represent
3	21	DATA 2	IN	information of the 1st to
4	22	DATA 3	IN	8th bits of parallel data
5	23	DATA 4	IN	respectively. Each signal
6	24	DATA 5	IN	is at HIGH level when data
7	25	DATA 6	IN	is logical 1 and LOW when
8	26	DATA 7	IN	it is logical 0.
9	27	DATA 8	IN	
10	28	ACK	OUT	Acknowledge receiving data.
11	29	BUSY	OUT	A HIGH signal indicates that the printer cannot receive data.
12	—	PE	OUT	A HIGH signal indicates that the printer is out of paper.

Interface Specifications

Signal Pin	Return Pin	Signal	Direction	Description
13	—	SELECT	OUT	When SELECT is HIGH, the printer is on line.
14	—	NC	—	Not defined.
15	—	NC	—	Not defined.
16	—		—	Signal ground.
17	—	CHASSIS GND	—	Safety chassis ground.
18	—	+5V	—	5V power supply output. (300mA maximum.)
31	30	$\overline{\text{INIT}}$	IN	Initial stage after data inside buffer is printed.
32	—	$\overline{\text{FAULT}}$	OUT	This signal becomes LOW when the printer is: • off line • in error state • malfunctioning.
33	34	NC	—	Not defined.
35	36	NC	—	Not defined.

Notes

- All interface conditions are based on TTL level. Both the rise and fall of each signal must be less than 0.2 microseconds.

- The column heading "Direction" refers to the direction of signal flow as viewed from the printer.

' "Return" denotes the twisted-pair return, to be connected at signal ground level. For the interface wiring, be sure to use a twisted-pair cable for each signal and to complete the connection on the return side. These cables should be shielded and connected to the chassis of the host computer and the printer.

Interface timing

The figure below shows the timing for the parallel interface.

A: 1 µs (min.)   B: 1 µs (min.)   C: 1 µs (min.)   D: approx. 6 µs

Signal levels

Output signals: $V_{OL}, = 0$ to 0.4 v
$V_{OH} = 2.4$ to 5.0 V

Input signals: $V_{IL} = 0$ to 0.8 V
$V_{IH} = 2.0$ to 5.0 v

Serial interface

The laser printer's built-in serial interface can be set for either
RS-232C **or** RS-422A operation. These interfaces have the following
characteris tics.

Data format

Word length: 7 or 8 bits

Parity: 0 or 1 bit (None, Odd, Even, Ignore)

Start bits: 1 bit

Stop bits: 1 or 2 bits

The data format can be set using functions and menu items in
SelecType.

Baud rate

300, 600, 1200, 2400, 4800, 9600, 19200 bits per second.

Signal level

RS-232C: $V_H = 2.2$ to 12v
$V_L = -1.4$ to -12v

RS-422A: $V_H = 2.5$ to 5V
$V_L = 0$ to 0.5v

Transmission procedures

Ready/Busy:

- The DTR signal level changes to HIGH when the printer is ready to receive data (or to LOW if set for inverted operation by SelecType).

- The DTR signal level changes to LOW when the printer is not ready to receive data (or to HIGH if set for inverted operation by SelecType).

XON/XOFF:

- When the printer is ready to receive data, it sends an XON (11 hex) to the host computer through the TD line for the RS-232C interface or SD+ and SD- lines for the RS-422A interface. When ROBUST-XON is set to ON (by SelecType), and data is not received within one second of the XON signal being sent, the printer sends an XON signal every second. If ROBUST-XON is set to OFF, the printer sends only one XON signal.

- When the printer is not ready to receive data, it sends an XOFF (13 hex) to the host computer through the TD line for the RS-232C interface or SD+ and SD- lines for the RS-422A interface.

- The printer is ready to receive data when it is on line, no error conditions exist, and the buffer is not filled above the overload value set with SelecType.

- The printer is not ready to receive data when it is off line or when it is on line but the remaining capacity of the data buffer is less than the overload buffer value.

Serial interface pin assignments

The serial interface connector pin assignments and a description of
the interface signals are shown in the table below. The direction of
signals is given relative to the printer.

Signal Pin	Signal	RS-232C	RS-422A	Direction	Description
1	FG	*	*		Frame ground. Safety ground line.
2	TD	*		OUT	Transmit data. This pin transmits serial data from the printer to the computer.
3	RD	*	(RD-) invert	IN	Receive data. This pin transmits serial data from the computer to the printer.
4	RTS	*		OUT	Request to send. This pin is HIGH when power is on.
5	CTS	*		IN	Clear to send. This pin indicates that the computer is ready to receive data from the printer.
6	DSR	*		IN	Data set ready. This pin indicates that the computer is ready to communicate.
7	SG	*	*	——	Signal ground. This pin provides a ground for all the signal lines.
9	SD		(SD-) invert	OUT	Send data. This pin sends serial data from the printer to the computer. Signal level is RS-422A.

Signal Pin	Signal	RS-232C	RS-422A	Direction	Description
10	SD		*(SD+)* non-invert	OUT	Send data. This pin sends serial data from the printer to the computer. Signal level is RS-422A.
11	REV	*		OUT	Same as DTR.
18	RD		*(RD+)*	IN	Receive data. This pin transmits serial data from the computer to the printer. Signal level is RS-422A.
20	DTR	*		OUT	Data terminal ready. This pin indicates whether or not the printer is ready to receive data. If the printer ready protocol is not selected, this pin is always HIGH (i.e. the printer is ready to receive data). If printer ready protocol is selected, the printer can accept data when the pin level is HIGH, and cannot accept data when the pin level is LOW, when busy.
25	+5V DC	*		—	Not a signal, but a +5V power supply output. Maximum of 300mA.

* Signal is operational for the interface.

DIP switches

Select the required serial interface by setting the DIP switches on the back of the printer as follows:

	1	2	3	4	5	6	7	8
RS-232C	OFF	OFF	OFF	OFF	*	OFF	OFF	ON
RS-422A	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF

* If DIP switch 5 is turned ON when the RS-232C serial interface is in use, pin 25 on the connector is set to +5V; if the DIP switch is turned OFF, the pin on the connector is not used.

Index

A
Assembling the printer, 1-10—24
Automatic printing, 4-7—11

B
Basket
    cleaning, 6-21—22
    installing, 1-16
Baud rate, 3-16, 3-29
Buttons, control panel, 3-2, 3-4—6
Buzzer, 3-22

C
Carrying the printer, 1-9
Character samples, HP mode, A-2
Character tables. See Symbol sets
Cleaning
    developer unit, 6-24-28
    discharge wires, 6-19-21
    laser beam lens, 6-23
    main charger wire, 1-14,7-22
    paper guide, 6-21-22
    transfer charger wire, 6-19-21
Cleaning pad, 1-12, 6-2-6
Commands, 5-8
Communications. See Interface
Communication protocol, 3-25
Connecting to computer, 2-11-14
Continue, automatic, 3-21

EPSON® ActionLaser™

Quick Reference

HP Emulation Submenu

Function   Options

```
                              ┌──────────────┐      ┌──────────┐
                              │ FONT SOURCE  │◄►    │    I     │
┌──────────────────┐         └──────────────┘      └──────────┘
│ EMULATION=HPLJ2  │◄►              │                    ▼
└──────────────────┘               │               ┌──────────┐
                                   │               │    1     │
                                   │               └──────────┘
                                   │                    ▼
                                   │               ┌──────────┐
                                   ▼               │    2     │
                                                   └──────────┘
                                                        ▼
                                                   ┌──────────┐
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                              ┌──────────────┐      ┌──────────┐
                              │ FONT NUMBER  │◄►    │   99     │
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                                                   ┌──────────┐
                                                   │   005    │
                              ┌──────────────┐     └──────────┘
                              │    SYMBOL    │◄►   ┌──────────────┐
                              └──────────────┘     │ SYMBOL SETS  │
                                                   └──────────────┘
                                                    (See below)
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              │ SYMBOL SETS  │
│             └──────────────┘                            │
   ┌─────────────┐        ┌─────────────┐
│  │  ROMAN 8    │───────►│   ISO17     │                 │
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   ┌─────────────┐        ┌─────────────┐
│  │  ECMA-94    │        │   ISO21     │                 │
   └─────────────┘        └─────────────┘
│        ▼                      ▼                         │
   ┌─────────────┐        ┌─────────────┐
│  │  IBM-US     │        │   ISO25     │                 │
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│        ▼                      ▼                         │
   ┌─────────────┐        ┌─────────────┐
│  │  IBM-DN     │        │   ISO57     │                 │
   └─────────────┘        └─────────────┘
│        ▼                      ▼                         │
   ┌─────────────┐        ┌─────────────┐
│  │   ISO2      │        │   ISO60     │                 │
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│  │   ISO4      │        │   ISO61     │                 │
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│  │   ISO6      │        │   ISO69     │                 │
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│  │   ISO10     │        │   ISO84     │                 │
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│  │   ISO11     │        │   ISO85     │                 │
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│  │   ISO14     │        │   GERMAN    │                 │
   └─────────────┘        └─────────────┘
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│  │   ISO15     │        │   SPANISH   │                 │
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│  │   ISO16     │──────────►                            │
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SelecType Main Menu

Function		Options
PAPER SIZE	◀ ▶	LTR
		▼
		LGL
		▼
	▼	A4
		▼
		EXEC
COPIES	◀ ▶	99
		▼
	▼	01
AUTO CONT	◀ ▶	ON
		▼
	▼	OFF
EMULATION	◀ ▶	HPLJ2 ◀ ▶ [*]
	▼	
I/F	◀ ▶	PARALLEL
		▼
	▼	SERIAL ◀ ▶ [**]
STATUS PRT	◀ ▶	OFF
		▼
	▼	ON
POWER ON	◀ ▶	ON LINE
		▼
	▼	OFF LINE
DATA BUFFER	◀ ▶	99
		▼
	▼	01
OVER LOAD	◀ ▶	40
		▼
	▼	01
BUZZER	◀ ▶	ON
		▼
		OFF

▲ / ▼

* See the HP Emulation submenu
** See the Interface submenu

Interface Submenu

Function   Options

I/F-SERIAL	◄ ►	BAUD RATE	◄ ►	19200
			▼
			9600
			4800
			2400
			1200
			600
			300

PROT ◄ ► RDY/BSY(H)
▼
RDY/BSY(L)
▼
XON/XOFF

DATA BIT ◄ ► 8
▼
7

PARITY ◄ ► NONE
▼
ODD
▼
EVEN
▼
IGNORE

STOP BIT ◄ ► 1
▼
2

ROBUST-XON ◄ ► ON
▼
OFF

Manual feed tray

Paper cassette

Control panel

Paper support

Latch

Cartridge slots

Slots for face-up
output tray hooks

Paper path
selector

Parallel interface

Power switch

Serial interface

Power cord
socket

DIP switches

Drum replacement cartridge

Indicator light

Printed sheets counter

Density control knob

Drum unit

Basket

Main charger wire
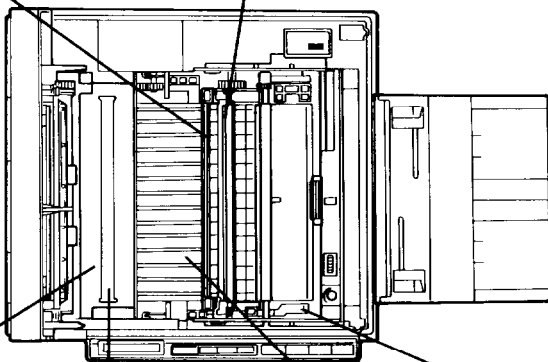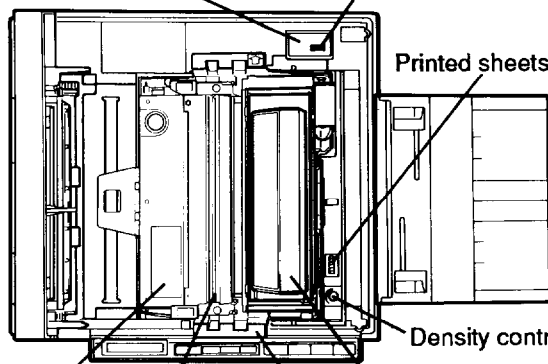
Developer unit/
toner cartridge

Transfer charger wire

Discharge wire

Fuser

Release lever

Paper guide

Cleaning pad

Actionlaser Key Features:

- High Quality, 6 PPM Laser Printing
- Six Built-in Fonts
- Graphics Capability
- Popular Font Cartridges Supported
- HP PCL® Compatibility
- Flexible Memory Upgrade
- Front Panel Control Operation
- Multi-Purpose Paper Tray